In This Issue—*Car Lighting Is Service Station Job*

MOTOR AGE

Vol. L
Number 2

PUBLISHED WEEKLY AT 5 SOUTH WABASH AVENUE
CHICAGO, JULY 15, 1926

Thirty-five Cents a Copy
Three Dollars a Year

No profit-killing service is needed on the STUTZ

according to

Jerome J. Benjamin, *President*
BENJAMIN MOTOR CO., ST. LOUIS

DEALERS can't make any money building or re-building new automobiles. The labor thus spent must come out of their profits.

Among the many fine things that Mr. Benjamin says for the New SAFETY STUTZ in his letter, the fourth paragraph stands out like a lighthouse.

There is many an automobile dealer who is pretty tired of completing cars at his own expense. He may be glad to learn that it isn't necessary.

We invite correspondence from motor car merchants who want to sell automobiles, make good profits, and keep those profits.

STUTZ MOTOR CAR CO.
of AMERICA, Inc., *Indianapolis*

Stutz Motor Car Company,
Indianapolis, Indiana.

Dear Sirs:

We are going into our fifth month with the NEW STUTZ Vertical Eight, and upon looking back over this time, are amazed at the progress we have made.

At your Sales Convention last December, we first viewed the New Car, and our visions for the future soared mighty high. The past five months' business has far exceeded our greatest expectations.

As for the car itself, we have only the highest praise to offer. Unsolicited, our owners are writing us and telling how wonderfully their cars are performing, and how well satisfied they are.

The report from our Service Department for the past five months is even more astounding. We have not had one single repair job of major importance to perform on a NEW STUTZ Eight! A few petty adjustments, together with oiling and greasing, seem to be the only "service" required.

Last, but not least, we are certainly pleased with the co-operation you have given us, and feel as though we are part owners in the STUTZ factory organization. We have made money on the account, and have been given every possible assistance from you in so doing.

We want to congratulate you on the building of America's greatest automobile—"The NEW STUTZ VERTICAL EIGHT."

Yours very truly,
BENJAMIN MOTOR COMPANY
Jerome J. Benjamin.
President

New
SAFETY STUTZ

Entered as second-class matter Sept. 19, 1899, at the post office at Chicago, Ill., under the Act of March 3, 1879.

MANLEY
High-Draulic Jack $48

CAPACITY 2½ TONS

Minimum Height only.....5¼ Inches Travel of Post.....10 Inches

From dead flat to full clearance off floor with any balloon tire.

Hydraulic principle

Min. height 5¼ In.
Travel.....10 In.

Bridge construction



2½ tons capacity

Safety valve makes it impossible to overload

Easy lift—Maximum load may be obtained with one hand

Quick lowering—merely press foot pedal and Jack lowers—like a barber's chair.

Can be operated under overhang or in close corners, as Jack handle operates with long or short strokes and in any position.



CAN BE SUPPLIED WITH OR WITHOUT RUBBER TIRES

Cat. No. 555 High-Draulic Jack with steel wheels $48.00

Cat. No. 556 High-Draulic Jack with rubber tires $59.00



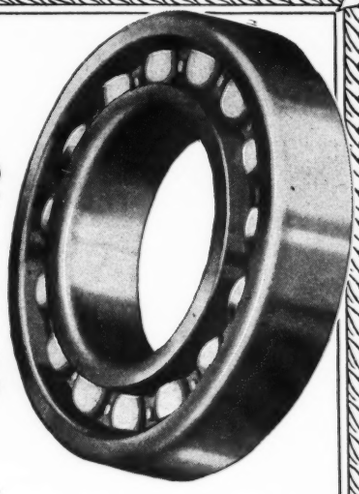
This is a Manley Year

Your Jobber Can Supply You. For new 1926 Catalog describing the entire Manley line write to

MANLEY MFG. CO., YORK, PA.

When better automobiles are built Buick will build them

New Departure Quality Ball Bearings



Why Have These Cars the Biggest Resale Value?

Certain cars are acknowledged to bring a bigger price when sold at second hand. Have you ever stopped to figure why?

It is because these cars have the slowest depreciation—shown the least wear—encountered the least friction—had the most efficient, friction-free of bearings.

These cars are equipped with New Departure Ball Bearings.

385

MOTOR AGE

Reg. U. S. Pat. Office

Vol. L No. 2

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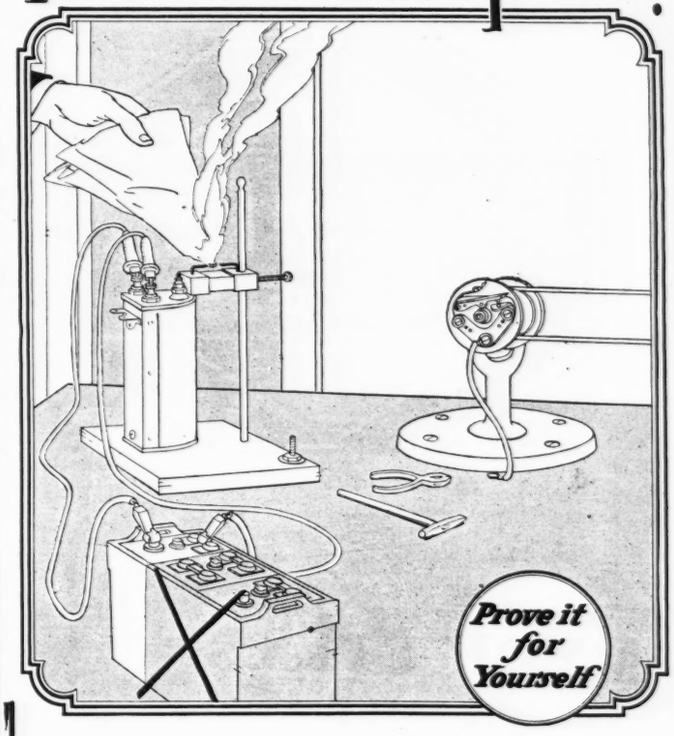
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Talk about *Hot* Sparks!



On 2 volts—

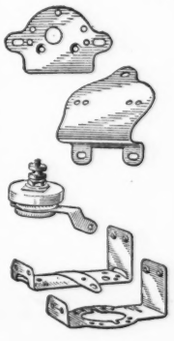
it sets paper a-fire!



THE *reserve power* built into a Jefferson Ignition Coil—the coil for *all* cars—is strikingly demonstrated by this test. Even when the starter takes practically all the current from a weak battery, a Jefferson fires plugs on what's left—and quickly starts the engine! You can always depend upon a Jefferson to deliver the hot sparks essential to fast pick-up, more power and speed.

Quickly installed on any car, because they go right in the same space as the old coil. Built and guaranteed by the pioneers and leaders in the replacement coil field—makers of more coils than all the others combined.

Jefferson Super Ignition Coils



NEW LOW LIST PRICES: No. 5 Jefferson Universal Coil Assortment includes E-900 Coil, four interchangeable brackets and a 12-volt resistance unit, list $7.00. R-300—$5.00 list, all others, $6.00 list. E-900 coil only, list $6.00. Brackets, each 25c list. 12-volt resistance units, each 25c list. Order from jobber today.

Free!

Write for the handsome 16"x22½" Jefferson Wall Chart for 1926 and particulars of the new Jefferson Service-Stock Agreement which enables a dealer to average 50% profit on all Jefferson Coils at their new low retail prices.

Jefferson Electric Mfg. Co.

Largest manufacturers of small transformers

540 SO. GREEN ST. CHICAGO, ILL. U.S.A.

PREMIER
TIRES

PART OF THE FISK LINE

Low Prices—
Good Values

The fact that Premier tires are part of the Fisk line and are made by The Fisk Rubber Company is evidence that they represent good value.

Therefore, you are not endangering your reputation as a reliable merchant when you offer Premier tires to the man looking for a good tire at a low price.

Premier Tires will bring you extra profits that might go elsewhere.



In the Matter
of
Cutting Expenses

The PRESIDENT

Copies
the
Administration!

STUDEBAKER

The Country Has Gone Nash!

365 Dealers Leave Other Front Rank Companies for Nash Franchise

The remarkable trend toward Nash among the stronger motor car merchants of the country is vividly mirrored in the following figures:—

—during the period from December 28, 1925, until June 5, 1926 exactly 574 new dealers have signed the Nash franchise.

365 out of the 574 left associations with well established old line companies to go with Nash.

And there were 34 among the 574 who had handled Nash cars at a previous time in a different territory or who had sold their businesses and who have now come back to Nash more warmly appreciative than ever before of the great profit possibilities of this contract.

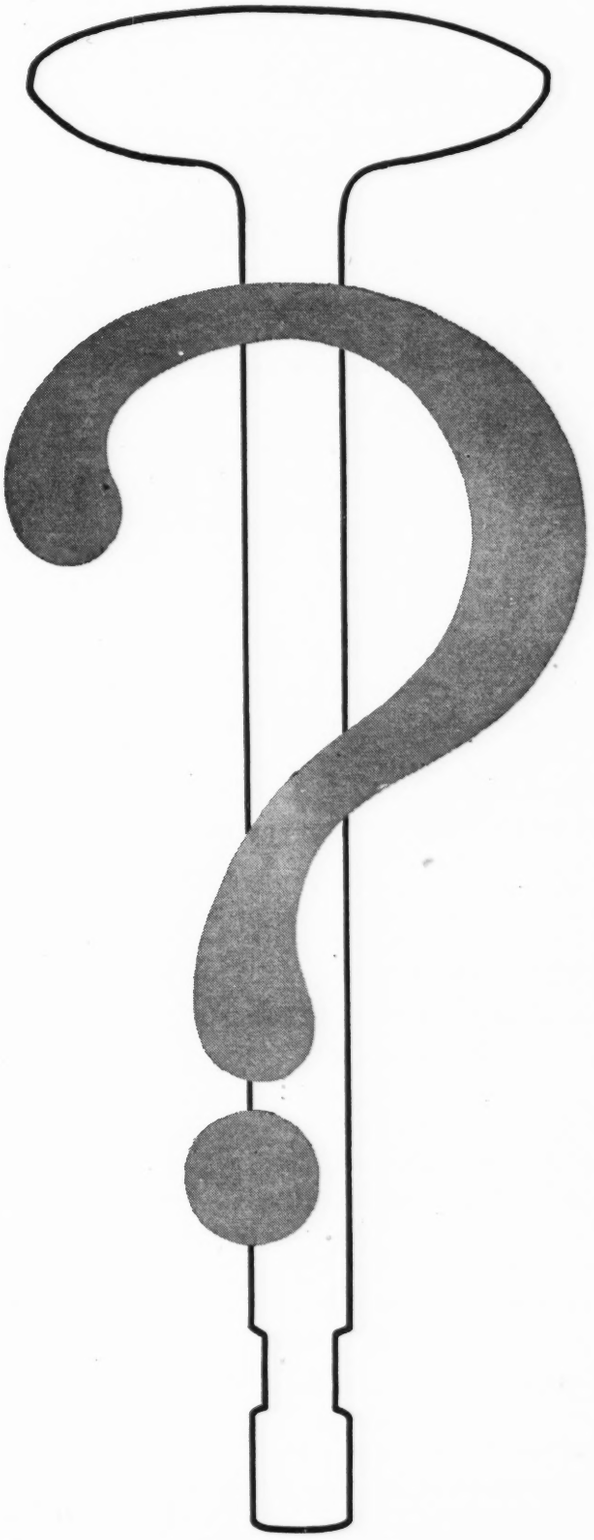
The remainder of the 574 are men who have been handling lines not so well known—good men, good dealers, whose earnings have been restricted because of the lines they represented, and men drawn from other commercial pursuits.

Light Six Series—Special Six Series—Advanced Six Series

16 models with a price range from $865 to $2090 f. o. b. factory

NASH (3812)

Leads the World in Motor Car Value



A new valve ' ' ' embodying improvements so radical and far-reaching as to be truly sensational ' ' ' will be announced next month by the James Motor Valve Company

MOTOR JAMES VALVES



Chrysler Dealers Sell 18 Million Dollars' Worth of Chrysler "60" In First Sixty Days

In the first sixty days following its introduction an enthusiastic motoring public has paid more than eighteen millions of dollars for the newest Chrysler, the new lighter six, Chrysler "60".

Unfilled retail orders for many millions more are being rapidly met by vastly expanded production facilities.

This overwhelming success was inevitable, for never before in the lower-priced six-cylinder field has the public been offered such compelling value as the new Chrysler "60".

And dealers everywhere are equally enthusiastic because of the added profits which such enthusiastic public response is opening up for them.

You can share in this success which the Chrysler franchise gives—with its complete line of three sixes and a four of standardized quality covering the entire quality car market.

Your inquiry will be held strictly confidential.

CHRYSLER SALES CORPORATION, DETROIT, MICHIGAN
CHRYSLER CORPORATION OF CANADA, LIMITED, WINDSOR, ONT.

CHRYSLER

Volume L MOTOR AGE Number 2

CHICAGO, JULY, 15, 1926.

Fight for the Motorists Rights

A Safe Place to Live; A Reasonable Place to Drive, and a Courteous Place to Visit, Is Keynote of Attitude Taken by Illinois Village Toward Speed Trap Evil

ONE of the most disgraceful conditions existing in America today is the speed trap evil.

The speed of motor vehicles must be regulated, but the regulation should be fair and honest.

In hundreds of villages and cities predatory police officers are preying upon motorists and exacting from them whatever it is possible to get.

In many cases the persons preyed upon can ill afford the fine or bribe that they must part with before being permitted to proceed. In practically every case the money thus mulcted from motorists probably would have been spent for additional motoring supplies or equipment and helped swell the legitimate channels of trade had not the grafters got it.

The automotive trade must take a hand in the protection of its own interests. Certainly great damage is done to the trade when thousands of motorists annually suffer the exactions of the speed traps. Such organizations as the American Automobile Association, and other large motoring clubs, are doing a great deal to correct this evil. They are doing it in the interest of all motorists and their work is helpful to the trade.

Mr. Dealer, what is the attitude of your town or city toward motorists? Do your officers prey upon the motor tourist or try to help him and make him like your city? You and your fellow dealer can do a great deal to correct the wrong condition if it exists. You have influence with men that you elect to govern your city and these men can control the activities of police officers.

According to a bulletin issued by the Chicago Motor Club the village of Berwyn, near Chicago, has taken a very commendable stand for justice to motorists. The city council has adopted a platform setting forth its attitude, the keynote of which is, "We want Berwyn to be known as a safe place in which to live; a reasonable place in which to drive, and a courteous place to visit."

The platform sets forth so well the reasonable attitude that should be enforced toward motorists that it is reproduced in full on this page.

BERWYN'S CODE OF JUSTICE FOR MOTORISTS

We believe that traffic supervision by motorcycle police should be a matter of public safety rather than a source of revenue. We do not believe that a hurried pinch by a motorcycle police dashing out from a place of concealment slows down traffic appreciably for more than a minute or two. We feel that one or two motorcycle police conspicuously placed on any avenue or properly patrolling the avenue at a rate of speed within the law for other motor vehicles would slow traffic more effectively and afford a greater measure of public safety than twice that number of police hiding for the purpose of arresting an occasional motorist traveling in excess of speed allowance.

We believe that Berwyn should be friendly and fair to the motorist passing through our city and we believe that most motorists will react favorably to reasonable requirements if reminded of them, first, by an active patrol of motor police on the avenue within sight of the motoring public, and secondly, by conspicuous signs stating what is demanded: A reasonable rate of speed for that section of the city. We want Berwyn to be known as a safe place in which to live; a reasonable place in which to drive, and a courteous place to visit.

Refuse to Let Cramped Cramp *Their*

Seattle Suburban Dealer Had to Move Three Times in Eight Months and Considers Adequate Building and Equipment Is Essential

THE Jensen-Hannah Motor Co., Chrysler dealers in the University district, a suburb of north Seattle, Wash., experienced a 300 per cent increase in business during the first eight months' operation, compelling the firm to make three moves to larger quarters.

"Better to move, however, than to permit cramped quarters to cramp our style," laconically declared Harry L. Jensen, president of the company.

Available locations being exhausted, the firm recently moved into newly constructed quarters, built to meet their needs—for some little time, they hope. It is said to be one of the finest suburban automobile dealer quarters in the Pacific Northwest.

The firm's remarkable success in operating a suburban dealership, may be measured by the fact that it started in business on August 29, 1925, with a paid capital of $5,000 and today the assets of the concern are estimated at $25,000. Whereas eight months ago the organization occupied 4,000 square feet, the new quarters consist of 12,000 square feet.

The new building is of Spanish stucco and has a frontage of 80 feet on Tenth avenue and 100 feet on East Forty-third street. The entire length of the building on Tenth avenue is given over to the display of new cars. The high arched plate glass windows give unobstructed view of the interior to all passing motorists from either direction. The walls of the show room are in brocaded stucco, and the floors in terrazzo.

A used car display room faces on Forty-third street, and the balance of the building is given over to the shop, stock room and service departments. New equipment is being used throughout.

"It's always a good policy to watch overhead expense to avoid cutting off profits," said Mr. Jensen, "but I believe it is false economy for a dealer to limit the work of his organization by operating in crowded and unsuitable quarters. This fact has been impressed on me during the past months. Red Grange would have a small chance on the gridiron, if he wore his kid brother's uniform. Some investments are an absolute necessity in the proper conduct of a business, and in the automobile business, roomy, well-lighted and neatly appointed quarters are of paramount importance.

"Mr. Hannah and myself were not new in the automobile business when we organized the firm last August, having had years of selling experience but it was our first move toward independent dealership, and we proceeded cautiously. For this we have no regrets, for it's better to be safe than sorry, but we soon learned that our expectations were too modest. Soon we found that it was necessary to park used cars outside. There was room for only three cars in the service shop at one time. The office was too small to permit installing an adequate system. Of course our display room permitted the showing of only a limited number of models.

"Working under these handicaps, no doubt lowered the efficiency of our entire staff. Salesmen in particular, were not especially proud to introduce a prospect to our plant facilities. I suppose we could have got along indefinitely, but I am convinced that waiting too long before making a change would have harmed our business immeasurably.

"I believe that it is the best policy for a dealer to be just a little ahead of his actual requirements, so as to



Walter P. Chrysler (center) turned the first dirt for new home of Jensen-Hannah Motor Co. H. L. Jensen is at the left and L. B. Hannah at the right

Quarters Selling Style

By MANDUS E. BRIDSTON



New home of Jensen-Hannah Motor Co., the third to be occupied by it in eight months



Show room of Jensen-Hannah Motor Co. An adequate building and equipment are considered essential by the proprietors of this company

adequately meet natural growth, rather than to sacrifice efficiency of his staff, and service to his customers by too limited room and equipment. A craftsman cannot do his best work with the handicap of improper or too meager a supply of tools.

"Since moving into our present splendid quarters, I can note a marked improvement in the morale of the entire staff—including myself. We take a keener pride in our business, and enter the hard game of selling with more spirit and enthusiasm. It is significant also that our sales have shown a marked increase, for the job of selling is made easier. We invite a prospect into our show room—a place that any dealer might be proud of. Lots of room on the floor to show the many models we offer—in harmonious, pleasing surroundings that set off the cars to the best advantage. Such environments adds prestige to the merchandise and to the firm. The same is true of our service department, and especially the used-car display room. Regardless how much you 'doll up' a used car, it will lose its 'tone' in a dingy display room. It's also important that the used cars may be seen to advantage from the street, instead of being relegated to an alley warehouse.

"The factor of pretentious quarters in automobile merchandising is particularly pertinent so far as the suburban dealer is concerned. And peculiar it is, that the suburban dealer so often neglects this important factor.

"The only excuse for the suburban dealer is the convenience of proximity to the trade, but this factor alone will not build a suburban business. It must be backed by service and facilities, somewhat on a par with the larger downtown firms."

The Jensen-Hannah Motor Company uses ten salesmen, and Mr. Jensen finds that his best men are developed from "green timber." He prefers married men for they have an incentive to hustle, and work constitutes 95 per cent of salesmanship, in his opinion.

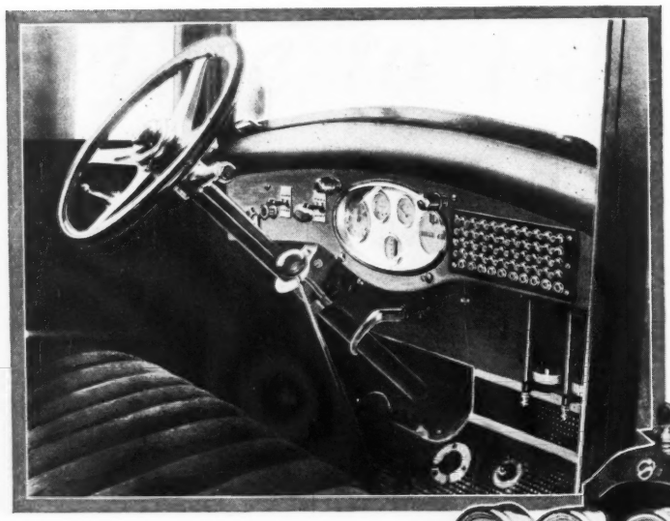
"The old-time automobile salesmen are losing ground," says Mr. Jensen, "because many refuse to accept changing methods, brought about by a changed attitude on the part of the public. People are losing interest in the old sales talk about mechanical specifications, for all standard cars offer reliable transportation. Selling himself, selling the firm, and selling the service back of the car is vastly more important to get the name on the dotted line. I find that new men grasp this idea more readily than the old-timers, who are so steeped in technical information that it handicaps their sales ability."

Associated in this firm with Mr. Jensen are L. B. Hannah, vice-president, and H. M. Miller, secretary-treasurer.

Used Cars Traded for Farm

MARION, O., July 12.—Lyman D. Jones, a motor car dealer of Marion, is a believer in an unique method of disposing of used cars and has just closed a deal whereby he traded 38 used cars for a farm containing 80 acres in Sandusky county. The cars were of all styles and makes and were the accumulation of the last six months in his business. Mr. Jones believes that he got the best of the bargain and on the other hand the buyer was glad to be rid of his farm. The cars were driven from the Jones garage in Marion to Arcadia, as the contract provided that all must be transported under their own power. It required 38 men and boys to drive the cavalcade to its destination.

Good Auto *is a*



The switchboard at the right is required to obtain all the various lighting combinations possible on the Nela Park test car



Test car equipped with various types of lighting devices used by Nela Park Laboratory of National Lamp Works

THE lighting of the passenger automobile is a tremendous business. Approximately 18,000,000 electric generating and lighting systems are in the hands of automobile owners.

Dealers, service stations and garages everywhere are called upon to maintain these millions of individual lighting systems in good order. The manufacture of minature lamps for automobiles has assumed immense proportions and established itself as a valued business.

The retail trade as a whole has not fully appreciated the large field for profitable merchandise and servicing that is opened up by the lighting requirements of automobiles.

Lights on automobiles are for the safety and convenience of drivers, passengers and other persons on the road, but mainly for safety.

Headlamps are to light the way so that the driver may see where he is going.

Tail lights are to reveal the position of the car to the driver approaching from the rear.

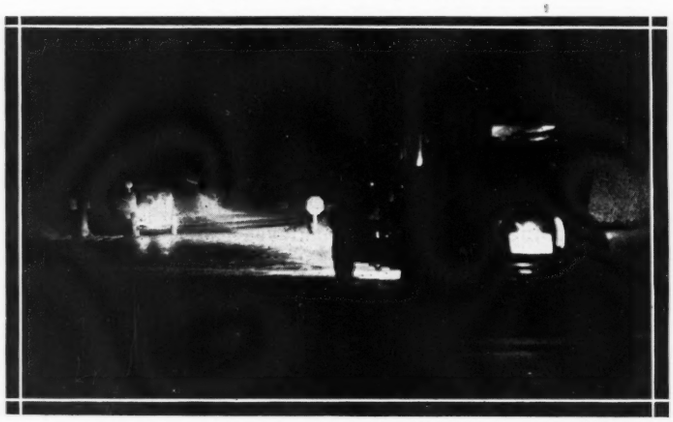
Stop lights are to indicate the slowing down of the car and they should function in day as well as night.

Spot lights or other special driving lights are invaluable for the purpose of throwing a strong beam ahead or to either side to reveal landmarks or hidden dangers.

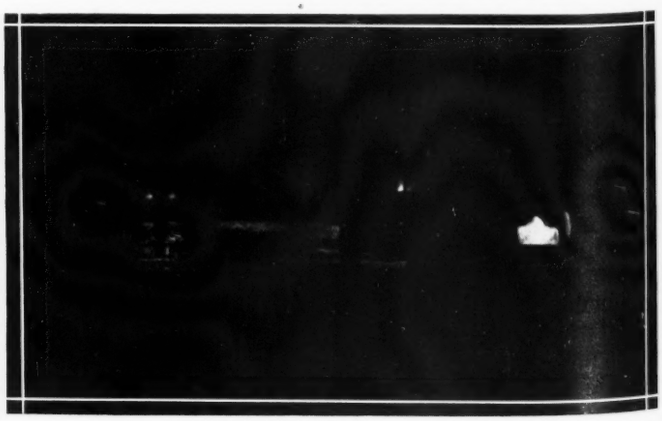
These, in general, are the essential lights of the modern automobile and it is the maintenance of these lights that opens up the biggest field for profitable servicing and selling.

A few years ago the lighting equipment furnished on most automobiles was nothing to boast about. Lamps were constantly burning out and it was nothing unusual to encounter "one-eyed demons" at night. Headlamps were erratic, burning brilliantly at first and gradually fading out until they were useless. Focusing was seldom resorted to and didn't do much good when it was.

Here headlamps with full intensity and fixed beam cause dangerous glare. (Photo by courtesy of Nela Park Laboratory of National Lamp Works)



Lack of light causes a dangerous situation as these two cars meet with dimmed lights



motive Lighting Service Station *Job*

Maintenance of Equipment and Adjustment to Give Greatest Illumination Without Glare Provide Extensive Business Opportunity for the Trade

By SAM SHELTON

There were fundamental causes for these conditions, some within the control of the car owner and some traceable directly to the practices of the manufacturers of the cars and equipment. The fading out of lights after short usage might have been due to loss of voltage and loss of voltage probably was due to poor switches, terminals, contacts or other equipment.

But the equipment was subject to abuse by the owners. Although generators were provided with adjustable output controls, the adjustment was rarely made and in most cases the battery was greatly overcharged at times and undercharged at other times. The overcharged battery sends excessive current through lamp filaments and shortens their life. The overcharging of the battery also damages it and causes it to give out sooner than if kept properly charged.

Drivers who turn lights on when making long drives in daylight to keep from overcharging their batteries probably add to the life of their lamps by avoiding the excessive voltage that would flow through them if the battery were permitted to become too highly charged.

There has been a change in lighting equipment. It is better than it used to be. This is especially true of headlamps. The headlamps are more firmly mounted, the focusing is easier and stays put better, reflectors keep their brillancy and lenses have been designed that properly distribute the light over the road.

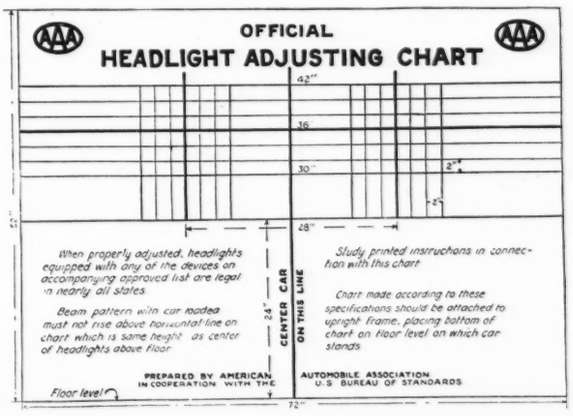
And yet the lighting of automobiles for night driving is not in the satisfactory condition that it should be—and largely because of the failure of the trade to properly sell and service the good equipment that is available. No matter how much good equipment is on cars and on the market, lighting will not be satisfactory unless enough retail trade units throughout the country are prepared to properly service the equipment. There is no doubt that such servicing when properly done is a profitable business.

In Kansas City recently when a "Safer Lights Campaign" was conducted it was found that two cars out of every three needed service on their lights.

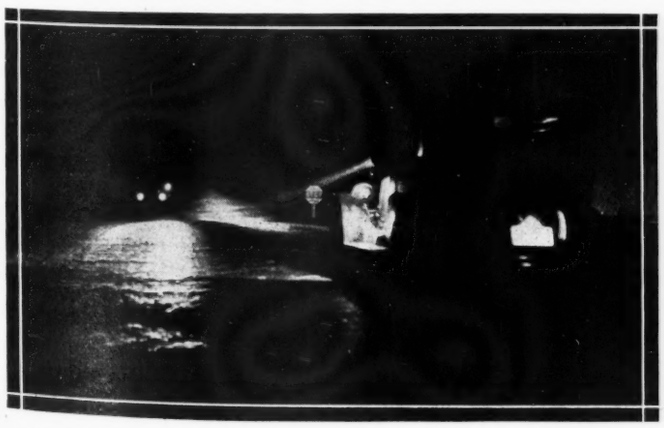
This situation revealed striking negligence on the part of the trade in the servicing of automobile lights. If there had been a large number of progressive shops in Kansas City constantly calling attention to the value of good service on lights, as there should have been, it is inconceivable that two thirds of all cars taken at random would have had defective lights.

(*Continued on page* 34)

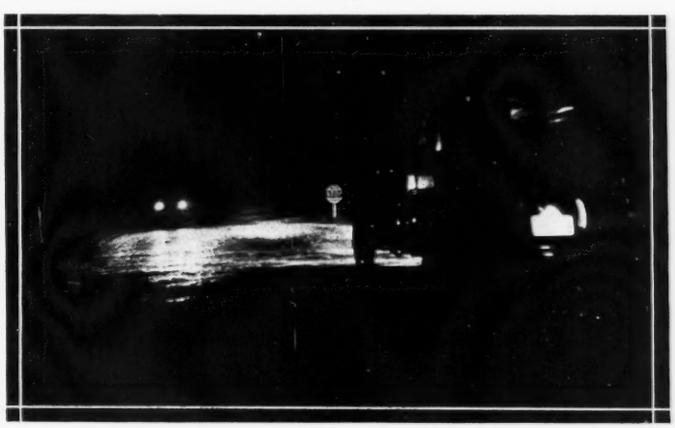
Headlight adjusting chart prepared by the American Automobile Association and approved by the Bureau of Standards



Here headlights are dimmed and spotlights are used to provide illumination without glare



Lights of full intensity but with depressed beam and proper focus, as shown here, provide good illumination without glare. (Photo by courtesy of Nela Park Laboratory of National Lamp Works)



Service Characteristics *of* Stutz Double

Special Delco System Uses Coil Which Supplies 16 Sparks Every Two Revolutions of the Engine—Secondary Winding Has Two Terminals and Is Not Grounded

DOUBLE ignition which fires two plugs in each cylinder is not new, for magnetos having this construction previously have been used. It is far from common in battery systems, however, and it will therefore pay the electrician or repairman to familiarize himself with some of the fundamental principles involved in the system as used in the Stutz.

A coil from the Stutz car, if tested in the ordinary way, would not spark or would give a very thin static spark, for neither end of the secondary winding is grounded. If tested incorrectly it might even be punctured due to the high voltage generated. Hence the desirability of knowing something of this system.

The interrupter used has a four lobe cam operating two sets of interrupter contacts which are so designed that first one set and then the other operates each 45 degrees of distributer shaft rotation. This gives eight breaks of the primary coil circuit each time the distributer shaft makes a complete revolution, and as this shaft turns at camshaft speed it provides sparks for a complete cycle.

There are, however, sixteen plugs to be fired and for this reason the one secondary circuit is used to send sparks across the gaps of the two plugs which are located in the same cylinder. A simplified diagram giving the path of the spark current is shown in Fig. 1 and the arrows show how the current will flow. The distributer rotor has two electrically separate metal circuits in it and serves to connect the two ends of the secondary winding to the proper spark plug wires.

Fig. 2 shows a sectional view of the distributer and Fig. 3 shows a detail of the rotor. The conventional contact in the center of the distributer cap connects to metal piece "A" and an offset terminal in the top of the distributer cap connects with a high tension track against which the carbon button "B" at the other end of the rotor bears, thus connecting the other end of the secondary to its distributing brush. The central portion of distributer brush "A" is buried under the bakelite of the arm so that there will be no tendency for a spark to jump down from the high tension circular track to this distributer arm.

A complete wiring diagram is shown in Fig. 4.

Previous reference has been made to the danger of making the wrong kind of test on the double spark ignition coil. The right and wrong way of testing are illustrated in Fig. 5. The connections at spark gap at the left will tell whether the spark is O. K. or not, also whether the engine will run or not, using the coil being tested. There is the possibility, however, of one end of the secondary winding being grounded, in which case only one set of plugs would fire, although the test at the left in Fig. 5 would appear to be perfect.

The sketch at the right of Fig. 5 shows a better method

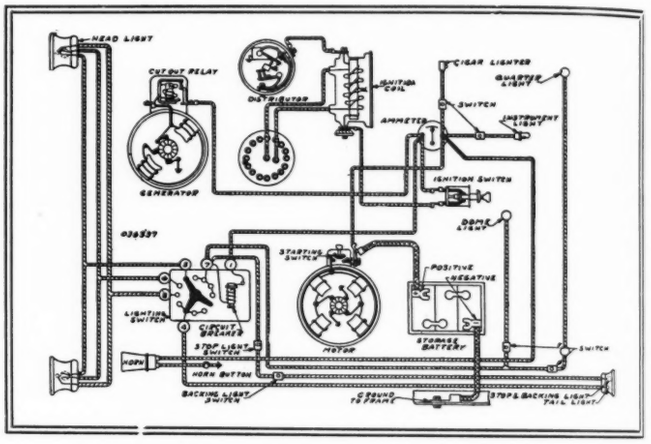


Fig. 4
Wiring diagram of 1926 Stutz, Model AA
From Delco Service Manual.

of testing which will show up a grounded secondary as well as one which will not fire at all. Here we have a double spark gap with the center portion grounded or connected to some part of the primary circuit. Now if the secondary insulation is defective at any point we will have sparks at one of these gaps and not at the other. The electrician making the test will then know that the coil will not serve where two plugs are to be fired at once.

The proper gap at the interrupter points is from .0225 to .0275 in., while the spring tension should be from 16 to 20 oz. The automatic advance which has a rotation of 30 degrees should start to function at 700 r.p.m. and reach its maximum movement at 2000 r.p.m. This can be checked with rotary test gap ignition equipment. There is also an advance of 38 degrees obtained manually. The engine is timed on dead center with lever in retard position. The plugs in No. 1 cylinder are removed and the screw in the center of the distributer cam is loosened. The cam is then turned until the stationary set of contacts is just ready to open. The cam locking screw is then tightened. The engine is then turned exactly 90 degrees and the movable contacts are adjusted so they are just ready to open. The firing order is 1-6-2-5-8-3-7-4.

The generator used with this ignition system has third brush regulation and when hot should deliver 8 amperes at 1050 r.p.m. and 12 amperes at 1600 r.p.m., the average output required being 10 amperes. These readings should be taken at the generator. If generator is tested cold 3 amperes should be added to these readings. The average ignition current is 2 amperes so that current to battery is reduced this amount from figures given.

The charging rate is adjusted by turning the adjusting nut on the commutator end of the machine. Turning it

Spark Ignition

By A. H. PACKER

clockwise increases the current output. The brush spring tension should be 1¼ lbs. The generator is driven 1.2 times engine speed.

Operation of the starter is by means of mechanical gear shift from a foot pedal, the pinion being driven through an overrunning clutch attached to the splined armature shaft. After pinion is in mesh the gear shifting lever operates a switch located on top of the motor housing, thus completing the electrical circuit. The lock torque of the motor is 11.25 lbs. at 3.75 volts. The no load current is 40 amperes at 5½ volts. Brush spring tension should be 2¼ to 2½ lbs.

The lighting switch includes a circuit breaker which should start at from 25 to 30 amperes, continuing to vibrate with a current draw of from 10 to 15 amperes. In testing the switch, the circuit connections which should be obtained are as follows:

OFF position, 1 and 7 connected.

Also 4 and 5 connected.

1st position, 1, 7 and 4 connected.

2nd position, 1, 7, 4 and 8 connected.

3rd position, 1, 7, 4 and 6 connected.

4th position, 1, 7, 4 and 5 connected.

There are a number of ways of checking these circuits, but the test which uses a battery and a lamp is probably the best for it necessitates the switch fingers carrying a heavier current than would be necessary with a voltmeter test and yet does not involve any danger of burning the switch contacts.

If a voltmeter and battery are used the indications will be reliable with the possible exception of a switch in which the fingers have been burned so that contact is not good enough to carry current needed by the lamp bulbs.

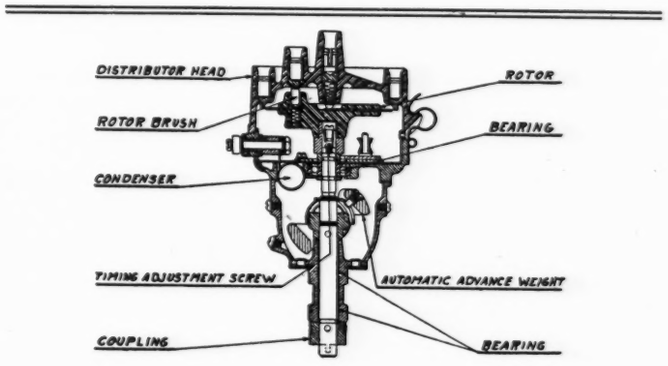
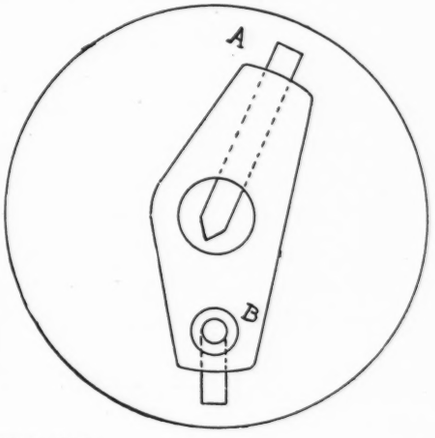


Fig. 2
Sectional view through the Stutz-Delco ignition distributer
(*From Delco Manual*)



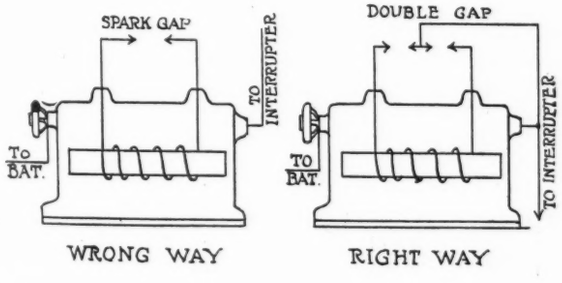
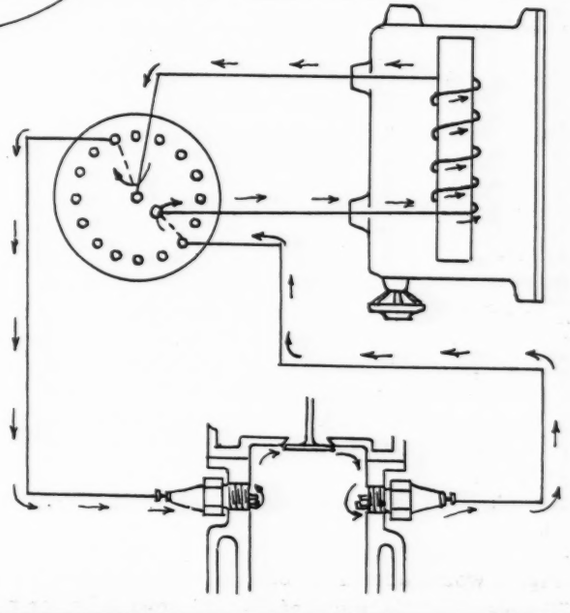


Fig. 5
The right and wrong way of testing a battery ignition coil with insulated secondary

Fig. 3
Top: The rotor in the distributer has two separate metal brushes well insulated from each other

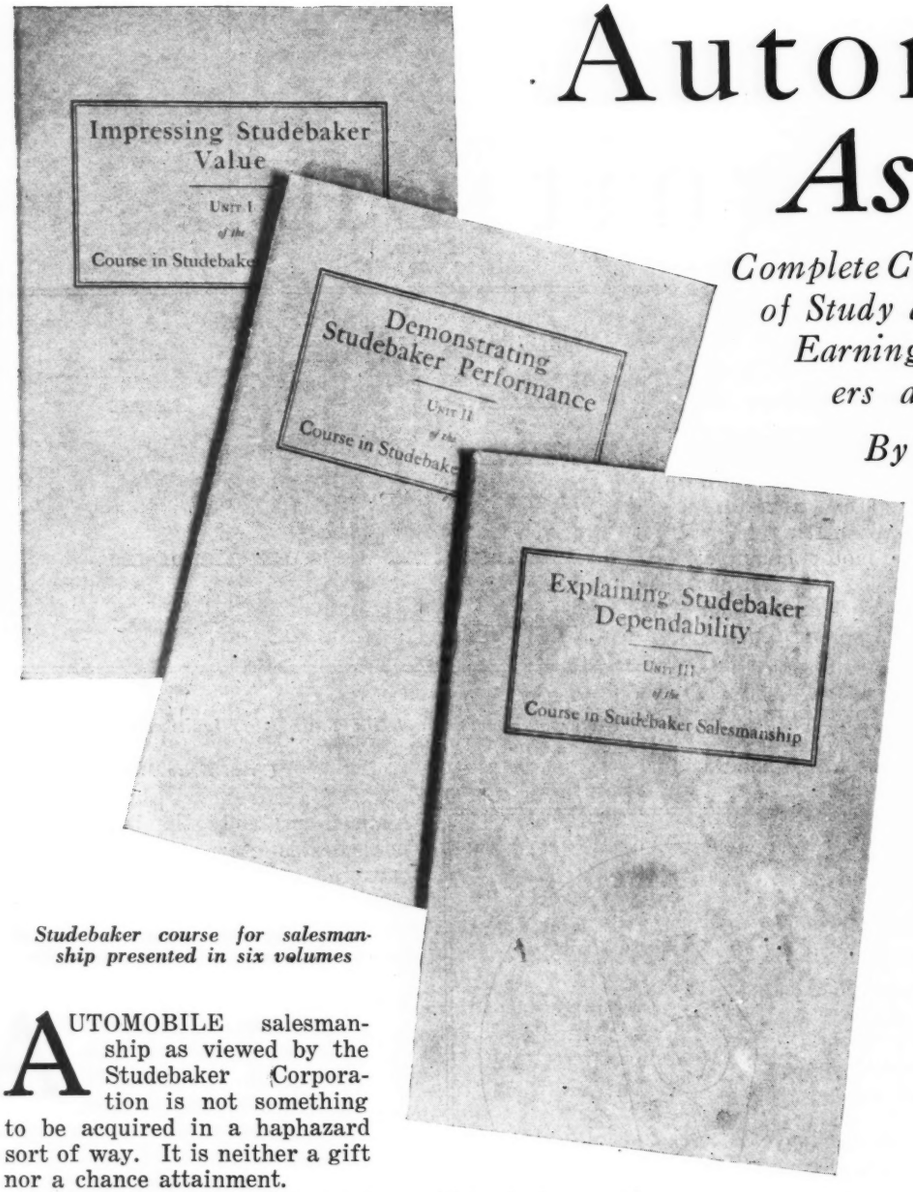
Fig. 1
Right: Path of spark current in double ignition system as used on Stutz



Automobile *As Taught*

Complete Course Taking Three Months of Study and Designed to Increase Earning Power Is Offered Dealers and Their Employes

By SAM SHELTON



Studebaker course for salesmanship presented in six volumes

AUTOMOBILE salesmanship as viewed by the Studebaker Corporation is not something to be acquired in a haphazard sort of way. It is neither a gift nor a chance attainment.

Rather the makers of Studebaker vehicles look upon the successful selling of automobiles as a high-grade profession in which it is possible to train ambitious and intelligent men so that they will be equipped to do credit to the dealer and manufacturer whom they represent and at the same time improve their earning powers.

Putting this theory into practice the Studebaker Corporation in the last few months has offered all its salesmen a comprehensive and specially prepared course in Studebaker salesmanship, the stimulating advantage of which has been testified to by hundreds of salesmen and dealers in reports of increased sales and greater earnings.

The Studebaker salesmanship course, which was offered to all Studebaker salesmen through the office of Paul G. Hoffman, vice president in charge of sales, was prepared and administered by the Business Training Corporation of New York City, an organization with long and successful experience in preparing and conducting educational courses in which correspondence and class room work is combined.

The course is confined strictly to the selling of Studebaker automobiles and is not a general course in the theory of salesmanship. It is as practical as such a course can be made, reference being made constantly to distinctive features of the Studebaker car. The course from beginning to end is based on the Studebaker car, its mechanical features, its performance, its comfort and power, its reputation, and the standing and reliability of its manufacturers.

Rating Scale for Automobile Salesmen

INSTRUCTIONS: Below are the seven outstanding characteristics of a top-grade automobile salesman. In order to measure yourself by this Rating Scale, give yourself whatever you consider a fair rating on each of the seven characteristics, using the following system of marking: *Exceptionally good*, 90% to 100%; *Good*, 80% to 90%; *Average*, 70% to 80%; *Poor*, 60% to 70%; *Exceptionally poor*, below 60%. The comments and questions below suggest some of the points to consider.

Rating

I. **Good sales personality** ..... %
Take into consideration whether you have an agreeable manner, can usually put the prospect at his ease, can be forceful without becoming unpleasant, can talk well, and above all whether you normally make the prospect like you and show confidence in you.

II. **Knowledge of automobiles** ..... %
This refers to such knowledge as an expert salesman should have, not to highly technical engineering knowledge.

III. **Skill in demonstrating a car** ..... %
This refers to the physical demonstration, either on the floor or on the road, or both. Do you know how to bring out the car's attractive features? Do you follow a well-thought-out method of demonstrating?

IV. **Skill in giving a sales talk** ..... %
Do you usually go ahead with a clear, interesting presentation of the car's chief selling points, or do you stand around and wait for the prospect's questions? Are your selling points well selected? Is your talk convincing? Do you follow any well-organized plan of presentation?

V. **Skill in handling questions and objections** ..... %
Do you meet questions, objections, and competitive claims squarely and dispose of them quickly? Do you avoid arguments, lengthy discussion, and knocks? Do you always swing back at once into constructive selling?

VI. **Skill in adaptation to prospect or to situation** ..... %
Are you usually able to get a line quickly on the prospect's tastes, interests, and prejudices? Do you weave into your sales talks references to the prospect's special attitude or desires? Are you easily able to meet any unexpected difficulties?

VII. **Skill in making progress toward a decision** ..... %
Do you keep driving in every sales interview toward a definite goal, either an immediate sale or an appointment for a later interview? Do you have some good method of getting the prospect's name and address? Are you businesslike toward the close of an interview without being too aggressive?

General average ..... %

How salesman can take his own measure

The course is contained in six booklets each well illustrated. The lessons in each book are expected to be studied for two weeks, at the end of which time the student fills out a question sheet based on actual sales interviews that have taken place in Studebaker salesrooms. The interviews are selected with relation to the points covered in the text and the student is expected to analyze them in the light of the good selling principles set forth in the book.

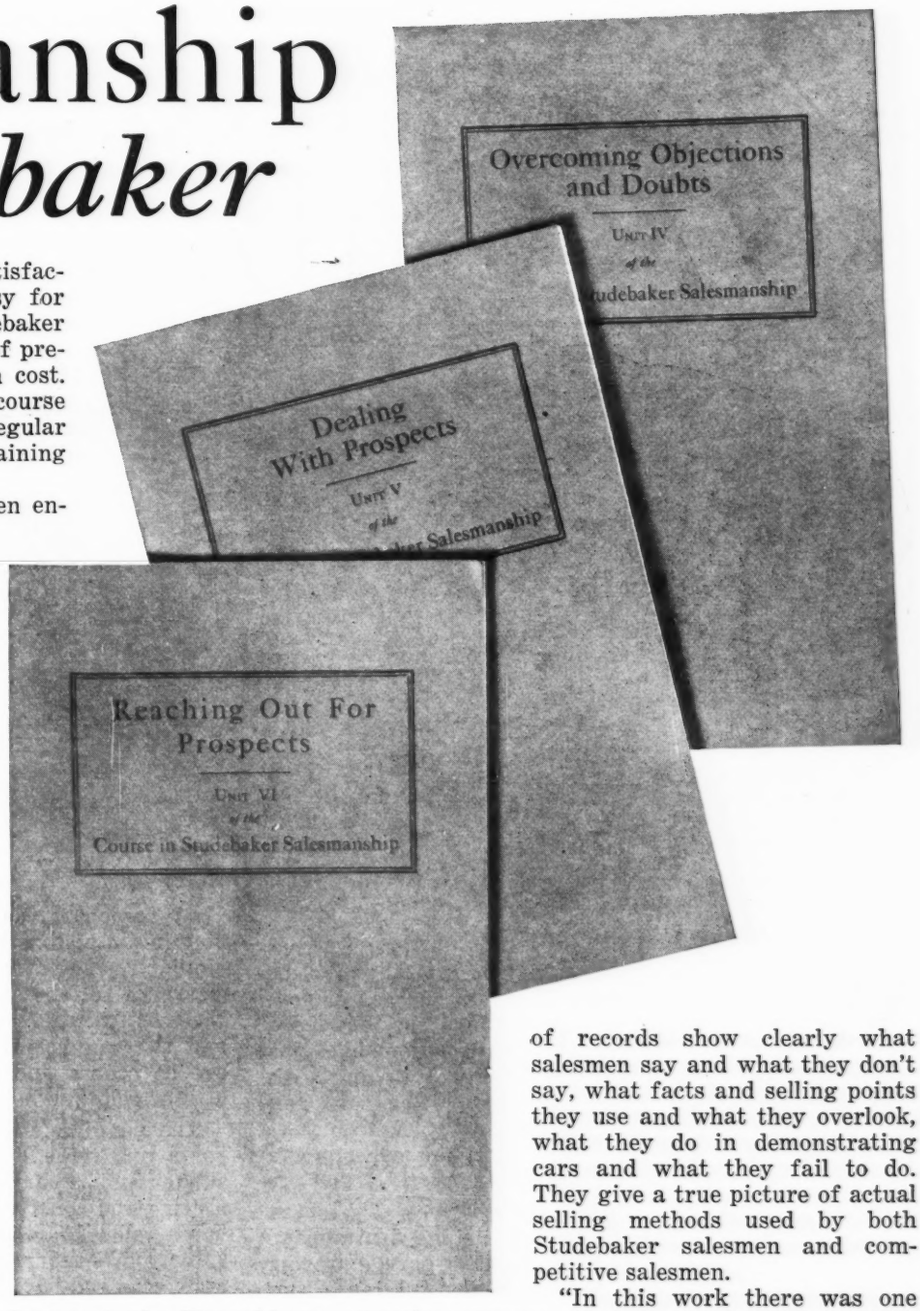
Studebaker dealers are encouraged to organize their salesmen in classes for study of the course. If three or more salesmen take the course in one establishment it recommends that discussion meetings be held one or two weeks after the students have received each book, and a manual to guide the dealer in leading the discussion is provided. A form is also provided for a report of each discussion meeting. The lesson papers sent in by the student after completing each unit of the course are graded and returned. The entire course is expected to consume about three months and a certificate is given

Salesmanship *by Studebaker*

each salesman completing it with a satisfactory grade. In order to make it easy for salesmen to take the course the Studebaker Corporation absorbed all the expense of preparing it and most of the instruction cost. The only cost to salesmen taking the course is $10, which is a small part of the regular fee charged by the Business Training Corporation.

In his introductory letter to salesmen enrolled in the course, Vice president Hoffman says:

To some of you this course will bring hundreds of dollars in increased commissions in the immediate future. To others the resultant increase in commissions will be figured in thousands of dollars rather than in hundreds.



Eight Pointers on Postponing Discussion of a Trade-in Price

1. Never name a definite trade-in price for a used car until you have shown the prospect the car you intend to sell him and have given at least a portion of the sales talk.
2. Never ask the buyer to make a price on a used car until you have either shown the Studebaker or have arranged to show it while the valuation is being made.
3. If the prospect insists on a price at the outset, call the used-car buyer and get him to inspect the car while you go ahead with your selling.
4. When circumstances are such that you are compelled to say something about the trade-in price before showing the new car, give simply a possible *range of prices* and swing back into constructive selling.
5. In discussing his old car with a prospect, never use the terms "trade-in," "allowance," "appraisal," or "valuation." These carry the suggestion that the dealer is making an arbitrary offer. It is always better to speak of "buying" the prospect's car.
6. Never knock the prospect's old car. If you do, you're reflecting on his judgment. Let him do his own knocking, *while you sell the Studebaker.*
7. When you know a trade-in is going to be involved, sell doubly hard on Studebaker value *from the start.*
8. If a prospect tells you some other dealer will give him more for his old car, don't argue. Many times you will find it sufficient merely to say, "They naturally would", then jump into a few quick comparisons showing Studebaker superiority; and from there right back into your story of Studebaker value.

Strategy in handling trade-in price

A few of the best of you will make it a stepping stone to high executive position. And I regret to admit that a few others will get nothing out of it.

"For this course is like a mine. The gold is there but you must dig for it. It won't study itself. You won't become a better salesman by carrying it in your pocket."

The statement as to how the course was prepared is interesting. In the first book the collection of material for the course is described as follows:

"The first step was to get the facts. Trained investigators were sent into hundreds of automobile salesrooms in different sections of the country—in big cities and also in representative towns and farming centers.

"At first these investigators went in as 'prospects'; they asked questions, raised objections and difficulties, and drew out selling points and ideas. Immediately after each interview they made a complete written record of the exact selling methods and sales talk. These hundreds of records show clearly what salesmen say and what they don't say, what facts and selling points they use and what they overlook, what they do in demonstrating cars and what they fail to do. They give a true picture of actual selling methods used by both Studebaker salesmen and competitive salesmen.

"In this work there was one big constructive purpose—to find out definitely and in detail what selling methods have proved to be result getters for Studebaker salesmen.

Following is an outline of the complete course:

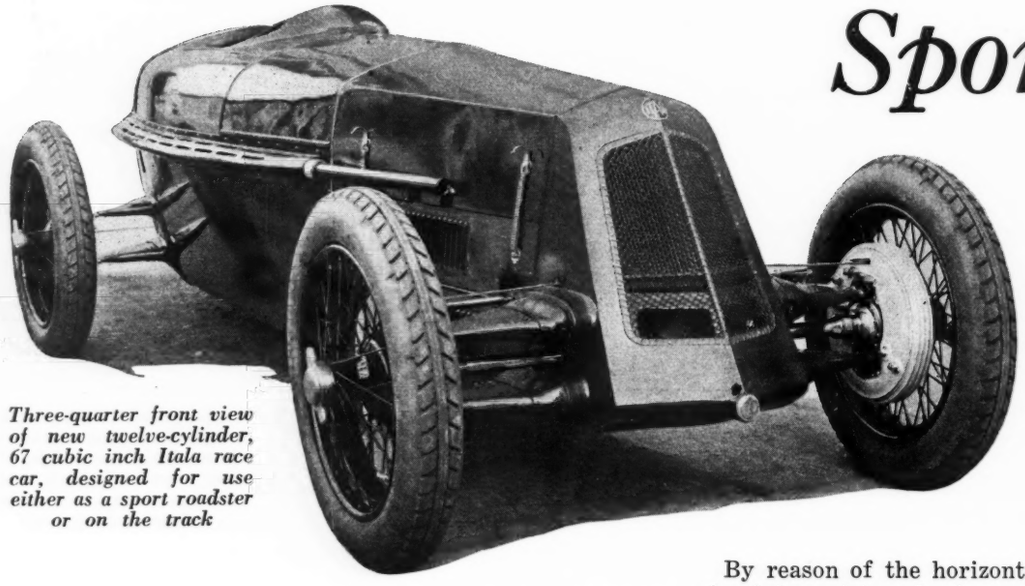
Unit I—Impressing Studebaker Value. Why organized selling beats hit or miss selling; the best procedure in greeting prospects, in showing the car to new prospects, and in finding out what the prospect wants; impressing the prospect with Studebaker value in the first showing and sales talk; how to avoid premature discussion of trade-in allowance and other pitfalls at the outset of the sale.

Unit II—Demonstrating Studebaker Performance. The real purpose of road demonstrations; the best procedure; proving the exceptional performance of Studebaker cars; increasing the prospect's desire through the accompanying sales talk; how to make sales talks convincing and resultful.

Unit III—Explaining Studebaker Dependability. How

(*Continued on page* 34)

12 Cylinder 67 Cubic Inch *Sport Car*



Three-quarter front view of new twelve-cylinder, 67 cubic inch Itala race car, designed for use either as a sport roadster or on the track

WITH twelve cylinders having a total piston displacement of only 67 cubic inches, a novel forced induction system and a special type of front wheel drive, the racing automobiles just produced by the Itala Company, of Turin, Italy, are a distinct departure from current practice. The cars have been built to the designs of Engineer Cappa, who for a number of years was associated with the experimental department of the Fiat Company and was largely responsible for that firm's racing machines.

In producing this type of automobile the firm appears to have a triple object in view: to take part in racing, to meet the fairly strong European demand for a very fast, sporting type of car, and to produce aviation engines.

To get into the 67 cubic inch class, which is one of the recognized racing divisions in Europe, the bore and stroke for a 12 cylinder engine is only 46 by 55 mm. (practically 1.8 by 2.16 ins.), while to get into the next size racing class, which is 91½ cubic inches, it is sufficient to increase the bore to 50 mm. (1.96 ins.) which can be done merely by boring out the cylinders without any other change in the engine.

Experience with these racing engines has proved of value in aviation work, the firm having a 700 h.p. engine of the same general design which has passed through the Italian Government 50-hour test and is now going into regular production. While, of course, many of the details are distinctive, the general features of the aviation engine are the same as those of the racing cars.

The cylinder block is a single aluminium casting with the two rows of cylinders at 60 degrees. After the block has been heated in oil, steel liners are pressed in, and the detachable head for each block of six cylinders is cast in silumin metal. The two valves per cylinder are horizontal in relation to the cylinder barrel, and the whole 24 are operated by a single camshaft having 12 cams, the shaft being carried in the angle formed by the two blocks of cylinders. The timing gear is at the front end and consists of a pinion on the crankshaft, an intermediate pinion in celoron, and the camshaft pinion.

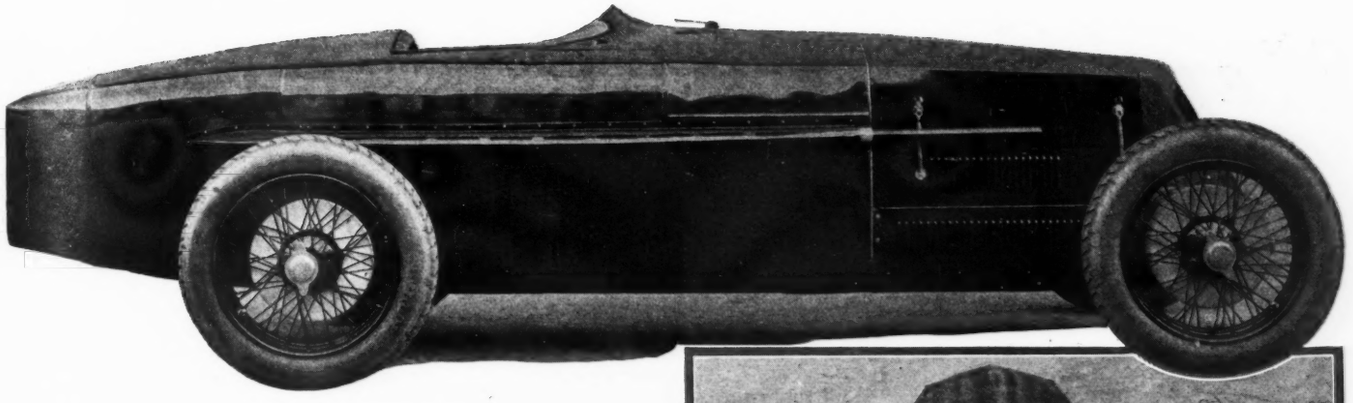
By reason of the horizontal position of the valves, the aluminium pistons having an unusually shaped head, very similar to that of a two-stroke engine, this being to give clearance for the valves and to provide for a compression ratio of 5.5. Effective diameter of the valves is 21 mm. and the weight is 20 grammes (.74 ounces); the seats are of bronze and cast iron guides are used. There is a light follower between the cam and the valve stem.

The one-piece crankshaft, which is of P4X Holtzer steel, has a very light flywheel with a ring gear for the electric starter and is carried in seven roller bearings. The connecting rod construction is peculiar in that the main rod has a roller bearing mounting on the crankshaft and the outer rod is mounted on the inner one with bronze bushings, each rod having a split end.

Another unusual feature of the engine is the supercharger arrangement. Driven off the rear of the crankshaft, through a flexible coupling, is a Rootes blower, which takes its air through an American cleaner. Instead of being connected up with the carburetors, the blower supplies compressed aid to the cylinders through ports uncovered when the piston is nearing the bottom of its stroke. The air driven into the cylinders at the end of the firing stroke force the spent gases through the exhaust valves, while the air admitted at the end of the intake stroke dilutes the very rich charge supplied by the carburetors and changes it into an explosive mixture.

A single water pump is driven off the rear end of the camshaft, and in addition to the main lead to the water jacket there are independent small diameter high pressure leads directed around each of the valve seats and also between adjacent cylinders. The arrangement gives a very vigorous flow of water around the valve seats and assures a high pressure flow between adjacent cylinders.

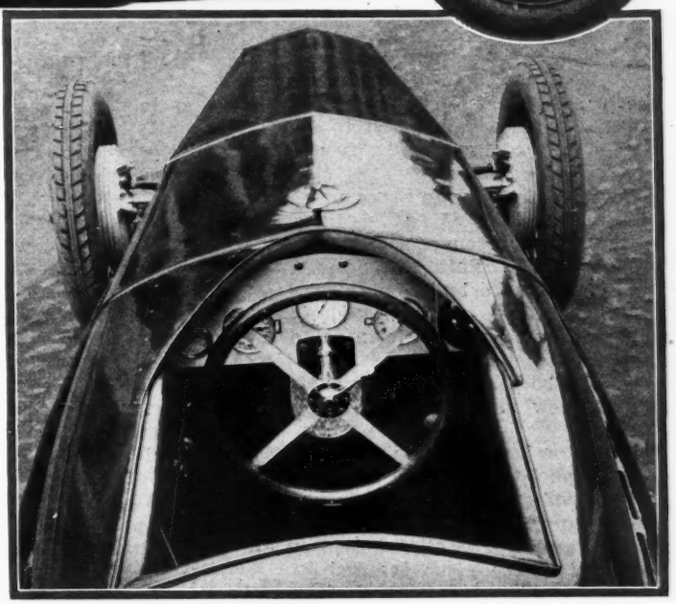
Designed to be used as sporting models, as well as for racing a Bosch generator is driven in tandem with



Brought Out by Itala

New Line Is Designed to Meet Demand for Fast Roadster As Well As for Use Upon Race Track

By W. F. BRADLEY
(European Staff Correspondent)



Top view shows the side of the new Itala sport car emphasizing its unusually low construction, even for a European model Lower right picture shows the interior of the car as viewed from above

the air compressor, being at the extreme rear of the engine. Ignition, however, is supplied by a couple of six cylinder type Bosch magnetos, driven from a cross shaft at the front of the engine, each one supplying current to a group of six cylinders. It is stated that the engine speed is 8000 revolutions a minute, and that with the engine running at 6000 revolutions a road speed of 100 miles an hour is obtained.

A high pressure lubricating system is used, with a single oil pump. The main supply of oil, practically 5 gallons, is carried in the lower portion of the basechamber, which is isolated from the upper part, so that there can be no splash, and it is of greater width than the rest of the engine. The oil is led direct to the seven main bearings and through the hollow shaft to the roller bearing connecting rods. By reason of the design of the bearing caps, oil taken to the inner roller bearing cannot escape laterally, but is forced through from this to the bronze bushings of the outer rod.

Viewed externally, the Itala engine is a metal box with a couple of carburetors attached. The valve operating mechanism is enclosed in an oil tight housing, yet the camshaft, valves and valve springs are more accessible than on the normal L-head engine.

Bolted up to the front end of the engine is the clutch housing, the gearbox and the transmission casing. This consists of two castings; clutch housing, gearbox and one half of transmission housing in one unit, and forward half of transmission housing and radiator platform as the second unit, the two being bolted together.

Front-end construction comprizes two transverse drive shafts from the bevel pinion, each shaft having a spherical joint at the outer end and a sliding joint on the inner end. Viewed externally the front end construction is symmetrical, there being an oval section casing both above and below the drive shaft, the inner ends of these casings being secured to the differential housing and the outer ends attached to the steering pivot housing.

The construction above the drive shaft consists of a very broad cantilever spring, the two extremities of which are mounted between rubber blocks. The entire spring is enclosed in a sheet metal casing, which gives protection and diminishes head resistance without interfering with the free movement of the spring, for connection between the casing and the differential housing is made by means of a broad rubber band. The construction under the drive shaft is similar except that the cantilever spring is replaced by a rigid beam, with a spring mounting at each extremity.

The rear end construction is an exact duplicate of that at the front, minus the driving mechanism. The same differential housing is used, without anything in it, and these front and rear housings are united by armored wood frame members. The steering gear is carried on the top of the gearbox, the steering column being horizontal and the steering wheel vertical. The first models to be produced have single seater bodies with the European width of 31 inches.

With 12 cylinders there is an exhaust pipe on each side of the car, but instead of the gases being expelled through the end of the pipe, they pass into an expansion chamber forming a portion of the rear end of the body and escape through louvres in the tail.

Front end drive allows of a very low construction, the highest part of the car being 33 inches above the ground. A perfectly flat under surface is secured with a 7 inch clearance. Wheelbase is 98 inches and track 47 inches. Fully equipped, with wire wheels having drop center rims and 27 by 4.40 tires, electric starter and battery, the weight of the car is only 1,210 pounds, with the result that when taking part in races under European rules it will be necessary to ballast the car to bring it to the minimum of 1543 pounds. According to the Itala Company some of these cars will race in America next season.

New Seven-Passenger

Sedan and Sedan-Limousine in Three Color Options Announced on 145-inch Wheelbase—Same Vertical Eight Engine Used and "Safety Glass" Is Provided for All Windows

TWO additional and advanced models of the Stutz Vertical 8 chassis has been announced by the Stutz Motor Car Company of America, Inc., as forerunners of the 1927 line which is declared to include other models of high grade cars in the same series.

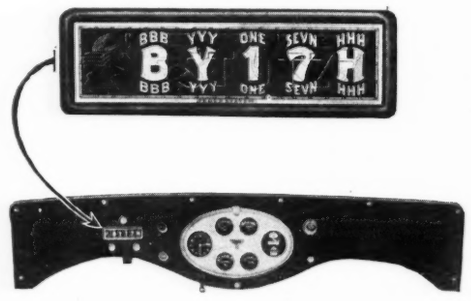
The new cars are the seven passenger sedan, listing at $3685 f.o.b. Indianapolis and the seven passenger sedan-limousine listing at $3785. Both these seven passenger models are built on a chassis of 145 in. wheelbase which the designers believe accentuates the "lowness to the ground" characteristic of the new safety Stutz. In both finish and appointment both the new models leave little to be desired.

In the sedan-limousine there is a leather upholstered front compartment with a dividing window which may be lowered to convert the interior into a sedan. The Stutz ventilators are on all doors and safety glass is used in the windshield, windows and door ventilators. A dictaphone is provided with the transmitter located under the right arm rest out of the way and a clock is inset in the center partition. There are automatic step lights over the rear doors and curtains on all rear compartment windows and on the partition window. Corner reading lights of 21 c.p. are provided with such added details as vanity case, smoking set, lolling straps and arm rests in the rear compartment.

The seven passenger sedan is as luxuriously fitted as the sedan-limousine. Auxiliary seats in the rear compartment are roomy and there is ample leg room for all when carrying a full quota of passengers.

The same safety glass is used in all windows and door ventilators.

Both these models are powered by the Stutz Vertical 8 engine. An additional step in the direction of safety is applied to all the newer models in the use of the Fedco Protective System. This system is primarily a theft preventive device supplemented by a detective service. Every new Stutz will bear a number plate which identifies and distinguishes each car from all others. This plate is affixed to the instrument board of the car and cannot be removed without either mutilating the plate beyond repair or so damaging the instrument board as to be obvious to any observer. The number plate cannot be counterfeited nor can a single figure be altered and escape immediate detection. The Fedco number plate has been approved by the Underwriters Laboratories and is protected by the William J. Burns International Detective Agency, Inc.



The illustration above shows the Fedco Number Plate attached to the instrument board of the New Safety Stutz

All engines of the new safety Stutz have new type valve stem guides and valve pistons. Each guide is approximately 1⅛ in. longer than the old guide while the new type valve piston has a skirt approximately $\frac{9}{32}$ in. longer than the old. These added lengths aid materially in holding the valve accurately in alignment. The new guides also shield the exhaust valve stems from the exhaust flame. The results of this construction are quieter valve action and certainty of long continued service without the necessity of frequent valve adjustment or valve grinding.

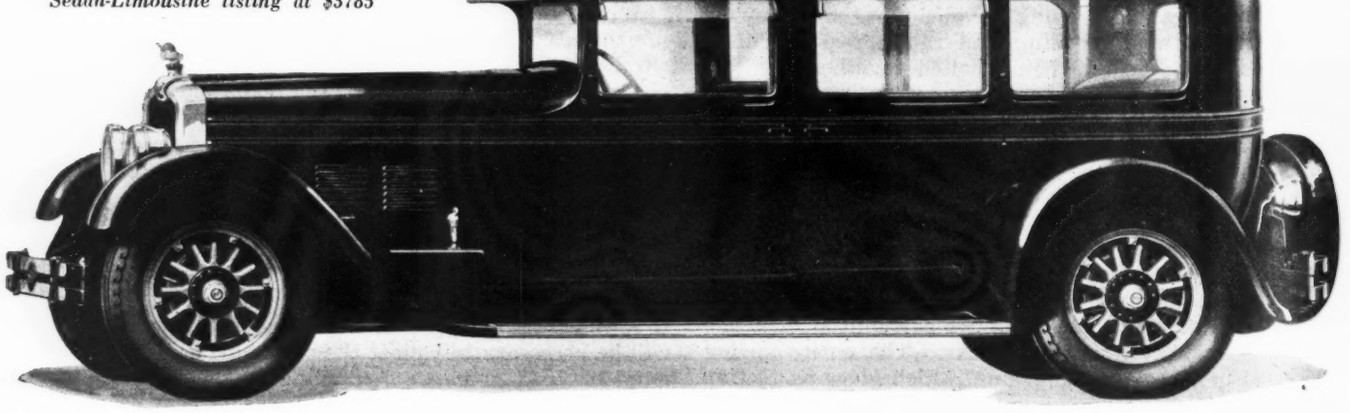
A new type fan of larger diameter is incorporated, insuring a sufficient flow of air to prevent overheating under the most adverse conditions.

The new models also carry a new muffler for the main exhaust pipe and a muffler for the heater exhaust pipe. These changes quiet the exhaust noise and due to the absence of back pressure in the larger muffler on the main exhaust pipe, the motor is free to deliver its maximum power with an improved smoothness of operation.

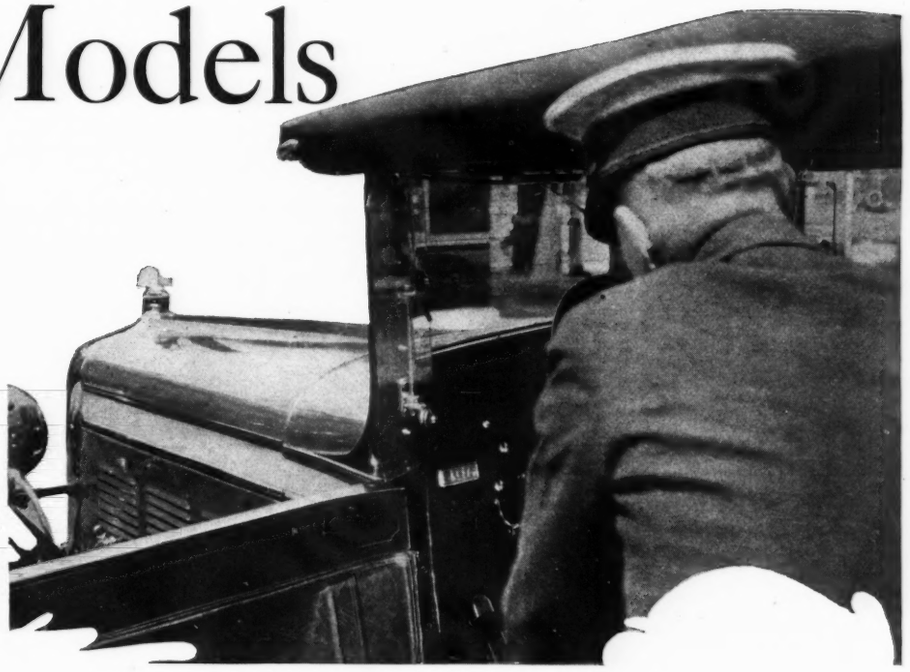
Technical changes set forth in the above paragraphs are declared by the company merely to spell a refining process that experience alone has set in action. Every new safety Stutz in the hands of present users will have these refinements added to the present power plants as soon as changes can be effected at no cost to the owner.

Upholstery of the new models will be in the same optional fabrics as that of the present five passenger closed series. Color combinations are in two tones in dark blue, dark green and gray. Option No. 1 consists of body in either Newport

New Stutz Vertical Eight 7-passenger Sedan-Limousine listing at $3785



Stutz Models



Every policemen is a guardian of the New Safety Stutz. A missing or tampered Fedco Plate on the instrument board is instantly apparent

blue or dark blue with a cobalt blue belt. Option No. 2 provides either old Harbor gray or Narragansett gray with a hemlock gray belt, and Option No. 3 consists of a body in Cameroon green or Kannape green with a Pucarno green belt. Both new models have the same finish.

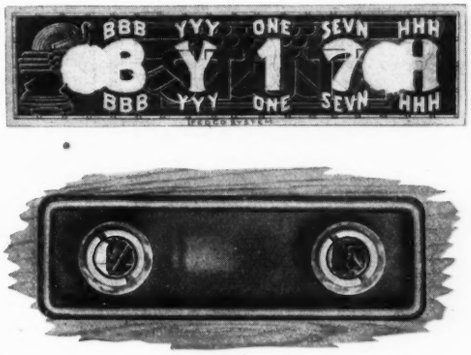
The seven passenger chassis alone including instrument set, front and rear fenders, hood, starting and lighting system, headlamps, tail lamps, spare rim and tool equipment list at $2985 f.o.b., while the seven passenger chassis as above and including in addition, cowl and wheel house pans, windshield, instrument board, cowl, bar panel, windshield rubber and cowl ventilator and parts, lists at $3250.

Production on the seven passenger models has already begun and the company advises that shipments will be made beginning July 15.

"Ever since the announcement of the new Stutz with safety chassis there has been an insistent demand for a seven passenger car in our line," says Edgard S. Gorrell, vice-president of the Stutz Motor Car Company of America, Inc., in announcing the new line. "Acting on this demand are now in a position to accept orders for these seven passenger closed jobs.

"Safety as far as human ingenuity and applied engineering science can establish is the keynote of the announcement of the additional models. Just as the new safety Stutz established a standard of strikingly new lines with low center of gravity and lithe road hugging dominance, attracting universal interest at the automobile shows early in the year, so the newer models will be the magnet that attracts the eyes and holds the interest of the automotive multitude.

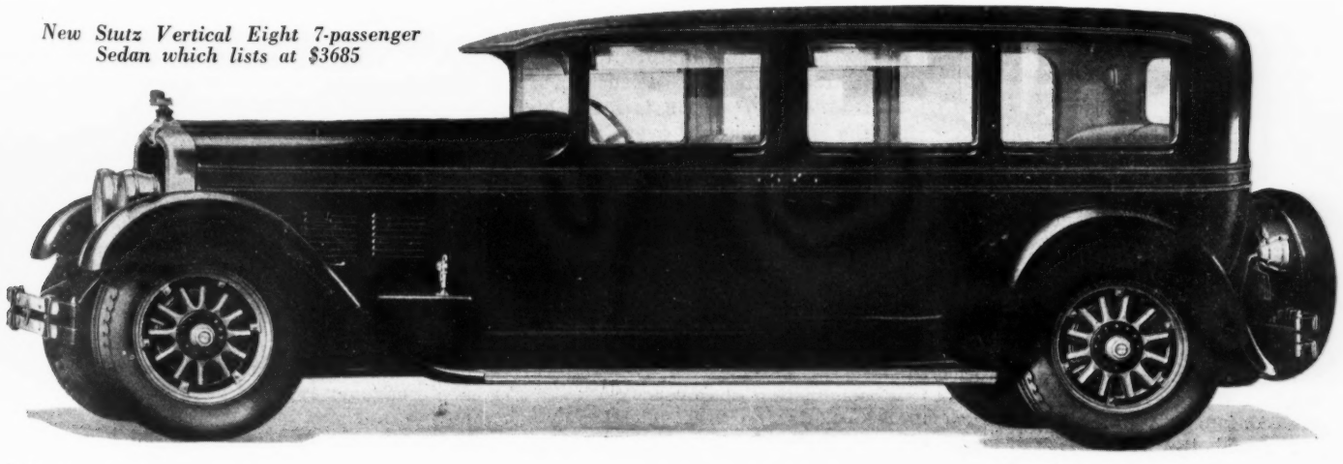
"Traveling 40 to 50 miles an hour in a glass cage with your family with the practical certainty that if there is an accident glass will fly and somebody be cut, is not our idea of safety. Our experiments with safety glass windshields convinced us that we were on the right track and we have picked up the burden of carrying our message of safety to the extent of equipping all models of the new safety Stutz all around with non-shatterable glass.



These two illustrations show how a Fedco Number Plate is damaged if it is detached

"The hydrostatic brakes developed by Timken have proved their outstanding merit. The brakes are on all wheels and are controlled by the foot brake pedal. The actuating fluid is contained in a hermetically sealed system. When the brake pedal is depressed the plunger sets off pressure in the system. With great use of the system a better understanding of adjustment details has been acquired, and the only braking system that engages an actual surface of 341 deg. on the brake drum without building up is graduating with honors from its ordeal of first usage. It is a feature of the new safety Stutz models and makes such wonderful deceleration possible."

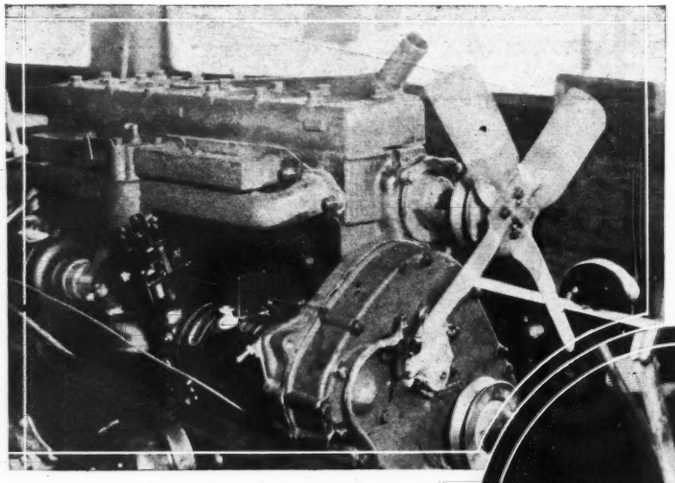
New Stutz Vertical Eight 7-passenger Sedan which lists at $3685



New Series

Two Air Filters, Crankcase Ventilation, Chromium Plating and Other Refinements Characterize 1927 Models

By L. S. GILLETTE



New manifold system has intake with abrupt turns to give turbulence and result in smoother operation

A LARGER, smoother and more economical engine embodying several new features including a crankcase ventilation system oil and air cleaners, and a "two-way" cooling system together with other additions and changes making for improved appearance and better driving comfort, are incorporated in the new "E" series of Oldsmobile cars. Except for the addition of an entirely new body style, a 5 pass. Landau listing at $1190, the line of five body models and also the prices of the standard equipped cars of the previous series are retained in the 1927 models introduced this week by the Olds Motor Works.

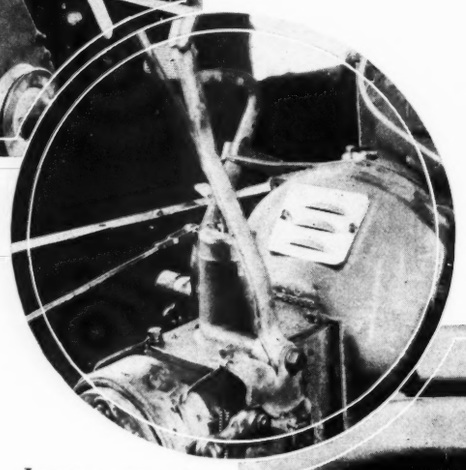
The general appearance of the new cars has been improved materially by the adoption of full-crowned fenders, new dust-shields, and by the raising and widening of the radiator which gives the hood line a longer, flatter appearance. Chromium plating introduced recently by Olds is used on all nickel parts. New appointments and upholstery are employed on the slightly changed Fisher closed bodies while the lowering of the seat cushions has increased the headroom. In conjunction with the new two-filament headlight bulbs a lever for controlling the lighting system is mounted in the hub of the steering wheel and matches with the throttle lever. A new type of thief-proof ignition lock is mounted on the redesigned instrument panel.

By increasing the power output through enlarging the bore ⅛ in. to 2⅞ in. diameter, it has enabled a lowering of engine speed in relation to car speed giving smoother operation at all speeds and also allowing a higher low speed torque. The new piston displacement larger by 16 cu. in., together with other changes has resulted in a power increase of 16 per cent which has improved the road performance of the car approximately 10 per cent. Maximum power is developed now at 2,400 r.p.m. as compared with the 2,600-2,700 r.p.m. range of the previous models.

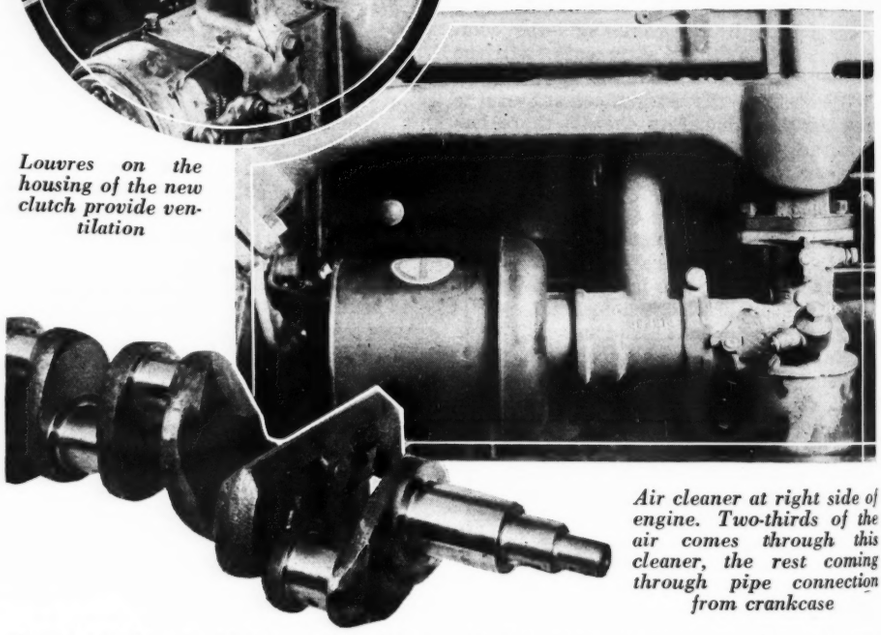
In conjunction with the reduced engine speed the rear axle ratio of all models has been lowered from 5.1 to 4.73 to 1, a decrease of 8 per cent. This marks the only change which has been made on the axles. Greater agitation is given to the mixture through changes in the cylinder head design in which the "dome" portion is made higher and the flat portion over the piston set lower, thus, shifting the mass of the mixture under compression more directly over the valves.

In line with this change the spark plug location has been moved nearer the valves and mounted in a vertical position which enables plain short reach plugs to be employed. The casting itself is deeper by ½ in. to provide additional water space over the valves and combustion chamber.

While the first official announcement is made at this time incident to the adoption of the "harmonic balancer," this device has been employed on Oldsmobile cars for several months past and it marks the second car in the General Motors group to be so equipped. The balancer is of the same type and mounted on the crank web between No. 1 and 2 connecting rods in the same manner as the unit employed on the 1926 series Oakland cars. Coincident with this change the method of drilling the crankshaft has been altered from parallel holes through the crank pins to diagonal ducts drilled through the crank webs while the center bearing cap is now of the four bolt type replacing the previous two bolt cap.



Louvres on the housing of the new clutch provide ventilation

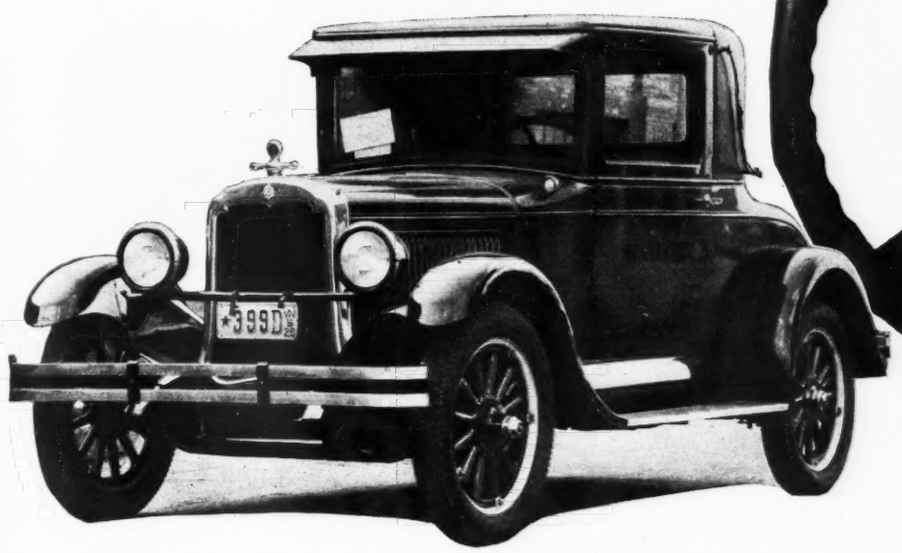


Air cleaner at right side of engine. Two-thirds of the air comes through this cleaner, the rest coming through pipe connection from crankcase

Harmonic balancer which has been used on Oldsmobile cars for the past few months.

Two centrifugal type air cleaners of A-C make, one mounted on the breather opening in connection with the crankcase ventilating system and the other attached directly on the carburetor air intake, are employed on the new model. The coupling between the standard air cleaner and the carburetor is provided with an elbow leading directly into the rear valve cover plate. On the opposite side of the engine a smaller type of air cleaner formed integral with the bayonet type oil gage is mounted on the crankcase in the manner of a breather. When ascertaining the oil level the air

"E" Oldsmobile



Three-quarter front view of the coupe showing full crowned fenders, higher radiator and improved body lines



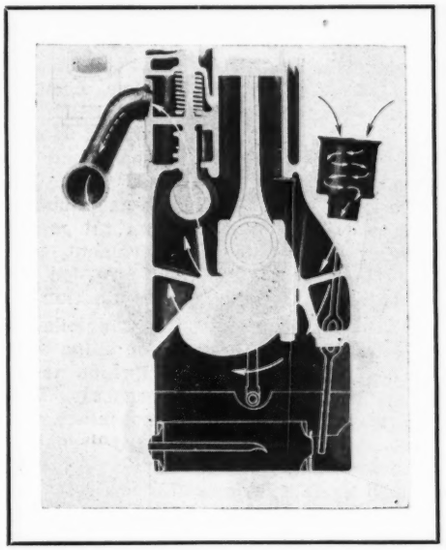
Two levers are now used on the steering wheel. One is the throttle lever, the other operates the two filament lights

cleaner is removed which brings with it the integrally formed oil gage.

Due to the regulation placed on the main air intake sleeve and the connection leading to the valve chamber, the carburetor takes one-third of the required amount of air through the crankcase and the other two-thirds through the main air cleaner. After entering the crankcase through the smaller air cleaner, the air circulates through the chain and valve compartments before it is drawn into the carburetor and it is claimed this action rids the lubrication system of the water vapors and parts of the heavier "ends" of the fuel. In addition the air circulation tends to cool the inside of the engine and prolong the useful life of the oil.

The water vapor is said to assist in carburetion and any portion of the lubricating oil drawn off from the crankcase mist tends to aid lubrication of the valve mechanism and cylinder walls. By limiting the amount of air entering the case, a portion of the less volatile "ends" of the fuel remain in the crankcase which prevents the oil from becoming too heavy in cold weather and making starting difficult.

By adopting a new type of oil filter, also of A-C make, Oldsmobile is the first make of car to be equipped with this unit. The device consists of a small cylindrical shell approximately 3½ in. diameter by 7¾ in. long enclosing a bag of special flannel provided with a header through which the oil enters. The header distributes oil to various channels formed in the flannel by stitching. The bag rolled-up is placed in the screen retainer contained in the shell and as soon as the filter bag becomes clogged due to the dirt taken from the oil, the pressure causes the bag to unroll which exposes a new section of the filtering element to the incoming oil. The complete unit is placed on the left side of the dash and is fed from a "tee" joint taken off the gage line with the outlet feeding back directly into the rear end of the crankcase.



Diagramatic view showing path of air through combination breather and air cleaner. This air picks up fuel and water vapor as it passes through the crankcase to the carburetor

In revising the engine design, particular attention has been paid to the manifolding, valve mechanism, and the cooling system. While the inlet ports remain of the three port variety, their shape, location and size has been improved. Instead of being in line with the exhaust ports, the intake manifold is connected with the block above the exhaust outlets insuring better heating of the incoming mixture and allowing the use of a more suitable "hot-spot." The vertical section connecting the carburetor with the new abrupt cornered, square shaped, intake manifold is jacketed by the exhaust manifold, the latter now making connection with the block through individual ports instead of the four outlets previously employed.

Due to the reduced size of the intake openings enabling higher mixture velocity, and also to the redesigned intake manifold together with the new abrupt "tee" shaped intake ports affording maximum uniformity in the mixture proportions, the starting, acceleration and fuel economy is said to be improved greatly. With the Carter carburetor recalibrated to take care of the larger bore, the fuel mileage is said to be increased to 19.5 miles per gallon.

In line with making both cams identical, their contours have been softened between the heel and nose giving a constant rate of valve lifter acceleration and also making for quieter operation and reduced wear. Supplementing the camshaft change, the valves are now provided with two separate springs of different size, the smaller diameter spring being surrounded by the larger spring, the latter being retained in the conventional manner. While this new arrangement makes for softer action and reduces dancing at high speed, the pressure of the valve head on the seat has been increased to 48 lb. to provide better cooling of the heads and more positive seating.

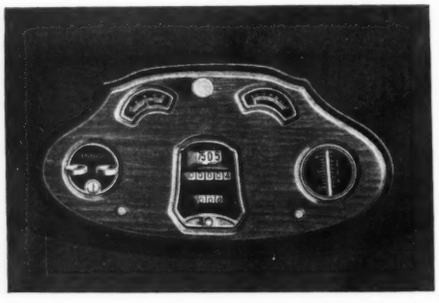
Other changes in the valve mechanism include lengthening the valve lifter body and guide by $\frac{5}{16}$ in., reducing the valve throat diameter to 1¼ in. and changes in the valve timing to give improved torque over low speed range.

A "two-way" cooling system embodying the desirable features of both pump

and thermo-siphon principles is employed on the new "E" series engines. The cooling water after entering the block from the pump has its major portion of flow directed to the valves and spark plugs by means of a series of holes in the cylinder head gasket and from there passes out to the radiator while the minor portion circulates around the cylinder barrels and then out. In this system the cooling water does not circulate first around the cylinders and then pass on where the warmer water has to cool the valves and combustion chamber, but the cooling water is brought directly in contact with the cylinder head with a separate supply of water used to cool the cylinders. Thus, the parts at the point of greatest heat are cooled by the manifold method of circulation while the water circulation around the cylinders is governed largely by the thermo-siphon type of action.

When starting from cold the flow around the cylinders is sluggish enabling an efficient temperature to be attained as quickly as possible while the subsequent flow is regulated automatically to maintain proper temperature for best results. Slight changes also have been made in the piston design to provide additional stiffness, the fan has been altered for quieter operation while the windings have been increased in the starting motor to provide greater cranking torque. The generator also is provided with a thermostatic control which automatically changes the charging rate according to seasonal conditions.

Louvres are formed in the clutch housing cover plate to ventilate the case and provide proper cooling for the clutch. The transmission adopted on



Instrument board on new Series "E" Oldsmobile

the "E" series is a new model of the same make and type as that employed on the previous cars and interchangeable with the old units. It is a Muncie "baby" unit which is smaller and lighter than the previous transmissions and at the same time embodies several improvements tending toward quieter operation and longer life.

The shape of the gear teeth has been improved and the ratios altered slightly. The plain bronze pilot bearing inside the main drive gear has been replaced with a Hyatt roller bearing to insure correct relationship between the sliding gears and countershaft. Speedometer gears are now located at a lower point in the case to provide for better lubrication.



The Oldsmobile Landau, a new body model which comes equipped with disc wheels, bumpers, trunk and automatic windshield wiper. The price is $1190

The gear shift lever lock has been discarded and a new ignition lock substituted in its place. The lock, mounted on the instrument board, is formed integral with the coil and on account of different voltages employed in the outgoing and lead-in wires, it is impossible to wire around the switch. In starting the engine, the ignition lock must be released and the key removed before the switch can be turned, when the ignition is turned off the lock is fastened automatically. The wiring is carried in integral woven leads.

An additional frame member has been placed at the rear of the frame to accommodate a new type of cylindrical fuel tank and provide for extra stiffness. The chassis lubrication system while still employing the pressure grease gun method is now fitted with Alemite connections. In raising the hood line the height of the radiator has been increased by $\frac{5}{8}$ in. and at the same time a $\frac{5}{16}$ in. hexagon copper core is adopted. The fan belt is now of the round type replacing the previous "vee" belt. With the addition of a K-S dash gasoline gage as standard equipment on all models, the walnut finished instrument panel has been redesigned and provided with the indirect system of illumination.

All closed models are upholstered with a short nap velour of taupe shade except the new Landau which is finished in a grey long nap mohair. Combination match and ash receptacles are set in the backs of the front seats of the sedans and on the right side of the coach models. All hardware is of a new design in a satin nickel finish. Equipment and accessories are the same as supplied with the previous series. The new Landau is finished in a striking color combination of sea fog grey below the moulding with ocean blue above and the upper structure in black. The rear upper quarter covered with black fabric is provided with "D" shaped windows and landau bows. This car comes equipped with bumper, bumperetts, stop light, disk wheels and other items included in the equipment of the regular models. Shocks absorbers all around are standard on all de-luxe models.

Both the coaches and sedans may be supplied optionally finished in Dagestan blue or in special two tone grey.

Eliminating Detonation Without Chemicals

Detonation can be eliminated by physical means, without use of chemicals, according to the statement of M. Rateau before the French Academy of Sciences. The process, which has been originated by M. Dumanois, marine engineer at present attached to the National Office of Liquid Fuels, is in the use of a piston of such a shape that the explosive waves are broken up. The piston presented to the Academy has a special type of head forming a series of steps, the use of which, it is claimed, has entirely eliminated all tendency towards detonation.

These pistons were used on an engine operating with 77 per cent gasoline and 23 per cent kerosene, and the results obtained were similar to those of a normal engine running on straight gasoline and tetraethyl lead, namely a road speed of 61 miles an hour and a gas consumption equal to 21 miles to the American gallon.

Unique Demonstration Staged by California Dealer

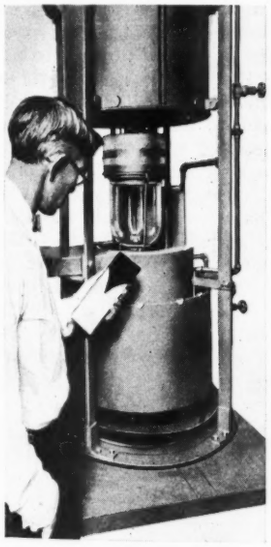
Borrowing, without previous warning, two cars belonging to private owners selected at random by disinterested newspaper representatives, the Walter M. Murphy Company, of Los Angeles, Hudson-Essex distributors, recently staged a unique economy demonstration.

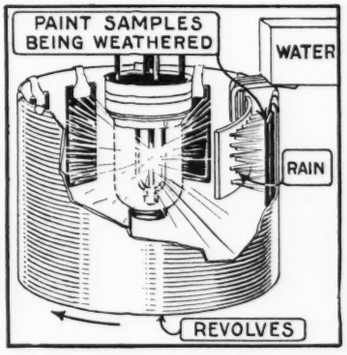
Accompanied by newspaper reporters, representatives of the Murphy Company stationed themselves at an outlying street intersection. The first Hudson and Essex to drive by was stopped, and it was explained to the drivers that the distributing organization wanted to borrow their cars. Both owners complied with the requests. Under the eyes of observers, the cars were driven through streets offering various kinds of congestion and grades after the contents of the gasoline tanks had been measured.

Where Curves *Make* Riding Safe

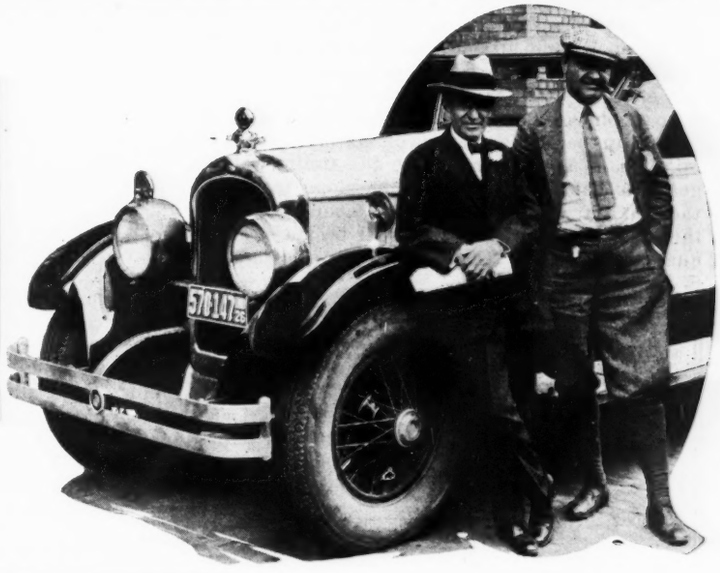


HAIRPIN TURNS are necessary to safety and performance in the Val Tremola section of the St. Gothard Pass, Switzerland. Away up in the top left corner of this thrilling view may be seen a Swiss post automobile hugging the side of the mountain.

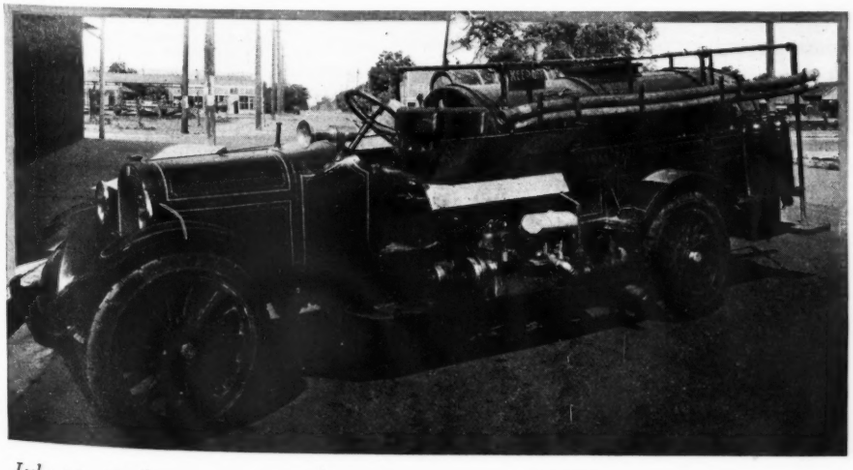




HOW LONG WILL THE PAINT LAST? is answered by this machine. It is used in Studebaker laboratories to test the durability of paint and upholstery and "weathers" samples just as if they were out in the elements



HARVEY AND BARNEY talk over the fine points of the new Marmon car that the once-racing Barney Oldfield has just purchased. He has been a life-long friend of Harvey S. Firestone, of tire fame



GRAIN AND GRASS FIRES are vanquished by this engine, designed by the chief of the Oakdale, Cal., fire department. It will extinguish grass fires along a six mile front with 250 gallons of water in the tank

ACCESSORIES TO BOOST SALES

Hastings Nims Pump for Fords

A new water pump for Ford cars is announced by Hastings Mfg. Co., of Hastings, Mich., makers of Hastings-Nims pumps. This pump is installed at the front of the engine block between the water outlet of the engine and the radiator. The installation is made without the removal of any standard part and the drive is by means of a separate belt which rides over the regular fan belt. Both belts, however, are independent of each other. The installation is said to be extremely simple as it is not necessary to move the horn nor use any special hose connection. The pump can also be installed on Ford trucks and on Fordson tractors.

Apco Ford Oiling System

An auxiliary oiling system for the Ford engine is being placed on the market by the Apco Mfg. Co., Providence, R. I. This device supplements the regular oiling system and carries additional lubricant from the flywheel housing to the front main bearing through the timing gears. This device is intended to obviate the danger of bearings burning out in case the regular Ford oil pipe should become clogged. A special fixture takes the place of the regular magneto plug and a pipe attached to this fixture carries the oil forward to the front of the engine. It is said that the installation of one of these auxiliary oiling devices can be made in approximately 15 minutes. Carrying the oil to the timing gears is said to give sufficient slope to the auxiliary oil pipe so that even on the steepest hills there will still be adequate lubrication. The price of the oiler is $1.50.

Tower Speaker Diaphragm

THE radio loud speakers manufactured by the Tower Mfg. Corp., 98 Brookline Avenue, Boston, Mass., are fitted with a new type diaphragm which is made of parchment and steel. An inner disk and outer ring connected by four radial arms are of steel while the rest of the diaphragm is of parchment. The makers state that the high notes are best reproduced by the steel and the low notes by parchment. Three speakers and a phonograph attachment are fitted with this diaphragm. Prices range from $3.95 to $15.

Thermoid All Weather Brake Lining

TWILL weave asbestos cloth is used in the new brake lining manufactured by the Thermoid Rubber Co., Trenton, N. J. In this lining the cross ridges of the asbestos pass diagonally across the face of the lining and the composition of the grapnel treatment has also been changed it is stated. This produces a dry coefficient of friction of .5 and under operating condition the expansion due to moisture absorption is said to be .001 in. The new lining is being sold in 50 and 100 ft. rolls and with each initial order of 300 ft. a complete set of merchandising and service helps are furnished. These include counter and window cards, relining charge chart, book of sizes and other helps.

Apco Shimmy Stop for Ford

Apco Mfg. Co., 1200 Eddy St., Providence, R. I., is now putting on the market a new type of Shimmy Stop for Ford cars. This is said to steady the steering, eliminate rattle, save tires and steering gear and relieve fatigue. The device is adjustable for tension and may be set to give the least resistance to steering and the exact amount of control necessary to eliminate the particular condition which may be present. The tension factor is constant. Cramping the wheels on the turns does not increase the tension and the device operates as readily in turning corners or parking as in straightaway driving. The construction embodies a broad bearing which slides easily and noiselessly in the front axle channel. The Shimmy Stops sell for $1.00 per pair.

New Red Cat Ford Heater

A new Ford heater has been added to the Red Cat line by the G. A. Roth Mfg. Co., Hastings, Nebr. It is known as Red Cat Heater No. 3. It is designed to fit the Fords equipped with a Swan or Holley system or any "rams horn" or "hot spot" combination. Fords, thus equipped, will not accommodate the regular type manifold heater.

The new Red Cat Heater No. 3 instead of attaching to the exhaust manifold, is placed behind the engine, at the right of the transmission, on the bend of the exhaust pipe. A breather pipe admits clean air which is warmed as it passes through the heater. A register through the floor boards admits the heated air to the car. It is a very simple arrangement and fits all models and types of Fords. The retail price for the Red Cat heater No. 3 is $5.00.

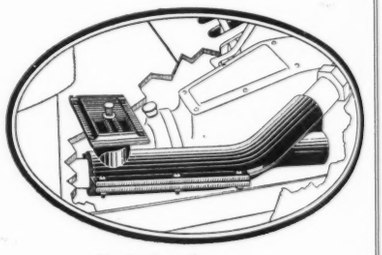
Acme Bulb Type Charger

THE Acme Electric and Manufacturing Co. of Cleveland, Ohio, has developed a trickle charger, using a tungar bulb, to be mounted in a rubber case that has four compartments. Three of these compartments hold the 6 volt storage battery elements, and in the fourth compartment is mounted the trickle charger.

There is also an automatic switch arrangement included with this "A" power unit. The storage battery is to be of 50 ampere hour capacity, and the trickle charger will have two rates of charging, one rate of ½ ampere and the other rate of 1½ ampere. By simply moving a small switch from one position to the other the different charging rates can be obtained from this instrument. This unit will serve the small as well as the large radio receiving set. List price is to be $35.



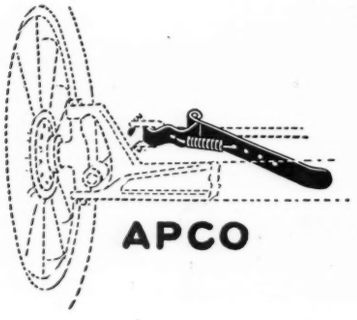
Hastings Nims Ford pump



Red Cat heater



Apco Ford oilers



Apco shimmy stop



Acme trickle charger

The READERS' CLEARING HOUSE

Questions And Answers On Dealers Problems

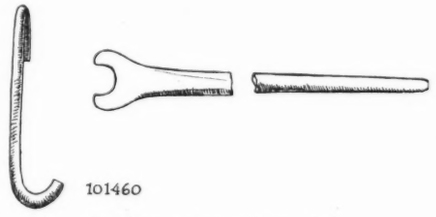
Valve Lifter, Valves and Timing Chains

Q.—What kind of a valve lifter is used on a model 55 Cadillac engine?

This valve lifter is made up of a hook and a crow bar. The hook hangs on top of the engine and forms a support for the bar. It has one end shaped so as to get under the washer which holds the valve spring.

Q.—How is the spring washer jarred loose from the split ferrel taper?

After the valve spring has been compressed by means of the valve lifter you will find that the valve raises up out



101460

Cadillac valve lifting tools

of the cylinder block. A sharp blow with a hammer on top of the valve will drive it down, freeing the washer from the split ferrel and the two halves will fall out releasing the valve.

Q.—What is the method of taking up the slack in the timing chain in this car and how can you tell when it is necessary to take up the slack.—John A. Whitman, 134 Campus Ave., Ames, Iowa.

You can check the slack in the chain by moving the fan back and forth. The movement at the rim of the fan should be about ⅜ in. When it becomes 1 in. you have about 5000 miles of life remaining in the chain. It is dangerous to allow the slack to get so great that you can get movement of 2 in. at the rim of the fan. There is no adjustment to the chain and when badly worn it should be replaced.

OVERHEATS AT HIGH ALTITUDE

Q.—We are having trouble with three model 70 Chrysler cars which overheat. The mileages are 5000, 7000 and 12,000 miles respectively. The average temperature during the day here runs between 90 and 120 deg. Other cars of about the same type and class do not have any trouble of this kind. The ignition, valve and push rod clearance and timing all check with factory recommendations. Elevation here is about 1800 ft. The country is level and water about 99 per cent pure.—Anderson Electric Co., Ajo, Ariz.

You might try removing the thermostat to give a little less resistance to the flow of water. You might also check the fan belt to make sure it is perfectly tight and check the ignition timing to see that in the advance position of the spark lever the interrupter points begin to open when the piston is .100 in. below top dead center on its way up. You might also check the two sets of interrupter contacts by using a test lamp in each circuit to make sure they open at the same time.

The Ball & Ball carburetor is normally supplied with a No. 100 jet for winter operation and No. 95 for summer operation. It is just possible however, that a variation in these sizes would give better operation. Possibly a No. 90 jet would give satisfaction. You might also try operating with a little lower compression by using an extra cylinder head gasket.

BOILS WATER WHEN RUNNING

Q.—We are having trouble with a 1922 Hudson. This car runs hot and will boil water in three or four miles running at 30 to 40 miles an hour. We have installed a new timing chain and checked everything and find it to be O. K. to the best of our knowledge. Anything you can offer will be appreciated.—Long's Ford Hospital, Sulphur Springs, Tex.

There are a number of things to check which include valves, ignition, hose connections, radiator, pump operation, and brakes. The valves should be timed so that the inlet opens 7 deg. after top dead center and the exhaust closes 8 deg. after top dead center. Ignition should be timed so that interrupter points just begin to separate in the retard position when piston is on top dead center. We understand that this car has ignition with automatic advance. You should check up to see that the weights are free and open up due to centrifugal action at high speed. New hose connections should be used if the old ones are bad, as the suction of the pump may cause hose connections to collapse, thereby stopping circulation of water.

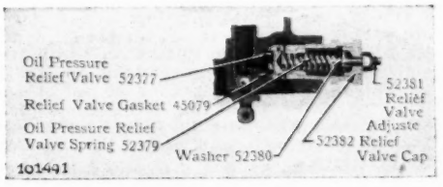
Another possibility is that the engine and radiator are badly encrusted with scale. Pump operation should be checked to see that it sends a good stream of water into the top of the radiator. You might also check the pump blade assembly to see that it does not slip on the shaft and to see that there is no coupling or gear slipping which would permit the pump to stand still while the engine is running. Another thing that will cause overheating is dragging brakes due to rusty brake shafts in the rear wheels. You should check up to see that when the brake pedal is released that the brake parts all return to their normal position and to not apply the brakes even to a slight degree.

Stopping Oil Leakage Explained Before

Q.—We have a Hupmobile model R, 1924, that uses too much oil, about one gallon to every hundred miles. It appears to leak around the rear main bearing, but we have taken up the rear bearing, drilled the drain holes larger and put on all new gaskets and still it uses about the same amount. We put in new piston rings, using three compression rings and one oil scraping ring on each piston, also drilled holes in lower ring groove to allow oil to drain back into crankcase. We still find that the engine gives off a lot of blue smoke.—Duggleby's Garage, Medaryville, Ind.

Procedure to follow in checking up the rear main bearing on the model R Hupmobile was published on page 25 of the February 27, 1926, issue of MOTOR AGE and if you refer to your copy of this issue, we believe you will get some helpful information. Another possibility is that the cylinder walls were in very bad condition when you installed the new rings and that the new rings do not fit the walls very well. Another possibility is that the bearings are not properly adjusted. If one connecting rod or main bearing is quite loose compared to the others, you will find an excessive amount of oil flowing from that bearing.

This oil will be thrown onto the cylinder walls and in spite of the piston ring equipment will find its way into the combustion chamber resulting in the blue smoke to which you refer. Still another possibility is that the oil pressure is too high. We are showing a cross sectional view of the pressure adjustment. The pressure should be about 5 lbs. idling and about 12 to 15 lbs. at maximum speed. This will of course vary somewhat with the temperature of the engine which in turn affects the viscosity of the



Hupmobile oil pressure adjustment

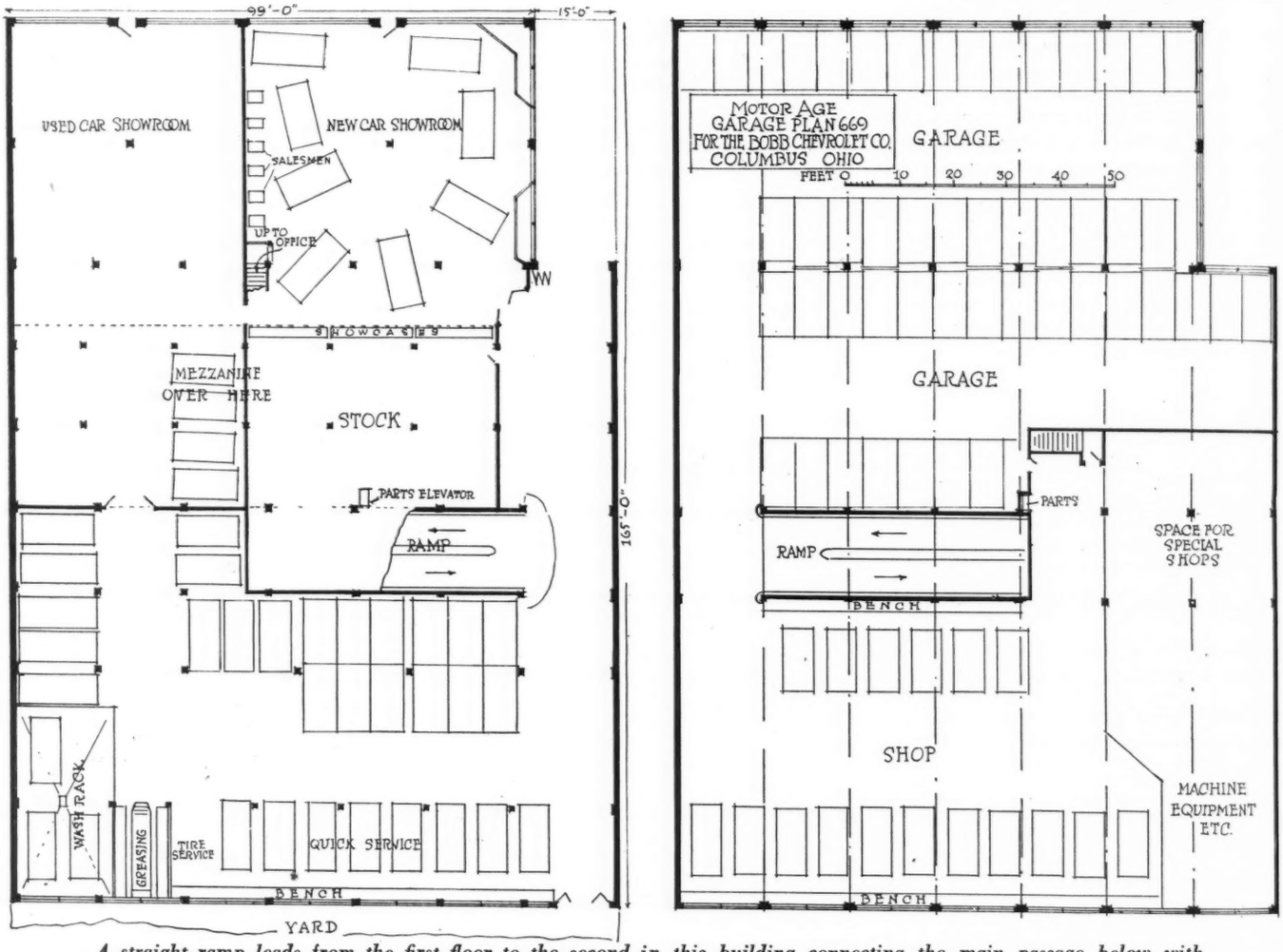
oil. Possibly you are filling the engine too full of oil. The gauge should be checked up to see that the cork float is not oil soaked. If the bearings are suspected it would be well to remove the lower engine pan and force oil through the lubricating system to see if it drips in equal amounts from all of the main and connecting rod bearings.

READERS' CLEARING HOUSE

Planning Your New Building

Complete Sales and Service Building for New and Used Cars

By Tom Wilder



A straight ramp leads from the first floor to the second in this building connecting the main passage below with the main passage above. There is a roomy vestibule inside the main entrance which will be very handy for selling service. Cars may be sent from here to the quick service department to the rear or up the ramp to the main service and overhauling department on the second floor

Q.—We are contemplating a new two story building on an inside lot 114 ft. wide by 204 ft. deep. This lot is on the west side of the street and we want to leave an entrance or driveway of 10 to 14 ft. wide to enter into the service station. We figured this building should be about 165 ft. in length and from 100 to 104 ft. in width.

We want to divide our show floor with a partition separating our used car show floor from our new car show floor. Our new car floor should accommodate about eight models. We want a mezzanine floor to take care of the bookkeeping department, salesmen school room, a capacity of about twenty men, and a few private offices and conference rooms, and the other rooms like locker rooms, and wash rooms or toilet rooms could also be placed on this floor.

We would like to have our parts and accessory department visible to prospects on the new car show floor, also to have this department accessible to the garage proper on the second floor, which would include all work outside of minor adjustments which would be handled on the lower floor.

We want a ramp in this building and storage space underneath the ramp for stock of parts and accessories. We also want two wash racks and one greasing pit. We will do all repair work upstairs on both new and used cars, the work on used cars being those traded in to us on new cars. The downstairs will be used for just small jobs such as adjustments and changing of tires and other minor repairs. We have been looking through the MOTOR AGE and believe that the nearest thing to what we want is your plan No. 576. If you have any other plans that would be more suitable or you would care to sketch one for us we would appreciate it. We also are enclosing a sketch of our lot which might be of some help to you.—The Bobb Chevrolet Co., 990 Parsons Ave., Columbus, Ohio.

There is one objection to building a mezzanine floor in a two story building of this sort where a ramp is to be used for communication and that is that the second floor must be so high to take care of the mezzanine that the ramp must be very long in order not to have it too steep. This one will need to be about 85 ft. long in order to get the pitch down to 20 per cent or 20 ft. rise to 100 ft. length.

There is an advantage along with this disadvantage however, since the ceiling is so high that it will let plenty of light in both to illuminate the showroom and the quick repair department at the rear. High windows are always better than low ones and this will help out a great deal in illuminating the lower floor. The center part of the building however, will practically be in darkness except for artificial light, but since we have used

Answers to Readers' Questions

A Case of Valves or Contacts

Q.—I am stuck on a job and want you to tell me what to do next. I have a customer with a Paige 1923 sedan. This engine had the cylinder block reground, new pistons, rings and pins installed. It has been driven about 2000 miles since the work was done and does not develop the proper power as it will only go from 45 to 48 miles per hour, wide open. The engine idles perfectly and does not seem to miss at high speed. I have examined breaker points, checked ignition timing and tried various settings, adjusted carburetor, set valves, to .006 in. cold, cleaned muffler, adjusted brakes so there is no drag and when cylinder block was reground the camshaft timing was not changed. The radiator is clean and all hose connections seem to be in good condition and the water pump is operating. What would you suggest doing next?—E. J. Kennedy, Kennedy's Garage, Elk Rapids, Mich.

We would recommend checking the valve tappet clearance when the engine is very hot. The intake clearance should then be .006 in. and the exhaust clearance .010 in. We suspect that setting the valves cold, that one or more of them are holding open when temperature increases. Another possibility is setting the interrupter points too far apart on the Atwater-Kent ignition. A setting between .005 in. and .007 in. will give good results and will prevent missing at high speed. If the points are set as much as .015 in. it does not give the time of contact necessary for the ignition coil to become fully magnetized when the car is going very fast. The interrupter point setting makes a difference in the ignition timing so after you set the points close you should check to see that they begin to open in the retard position when piston is up on dead center.

SALES AND SERVICE BUILDING

(*Architectural—Continued from page* 28)

this section for stockroom and storage of cars it may be as well dark as light.

The second floor we think has worked out very well. The forward 90 ft. has been divided into two sections of 45 ft. each with center aisle and space for storage of cars on either side. One of these sections may be used for new cars if desired and if this is done they may be packed in solid placing them crosswise of the building and extending in rows from one side to the other in solid lines.

The rear part of the building is reserved for service and has plenty of bench space as well as space for machine equipment and for any special shops that may be wanted.

There are three rows of columns which extend up from the ground to carry the roof trusses and on the first floor there are rows of columns between these to assist in carrying the second floor. We have not made a layout of the mezzanine floor, but there is ample room between the two dotted lines shown on the first floor plan for quite extensive offices. Part of this space may be used for the storage of stock if desired. The used car showroom may be extended back to the service room in the rear or the rear part of it may be used for garage if desired.

AXLE SAME FOR EXPORT

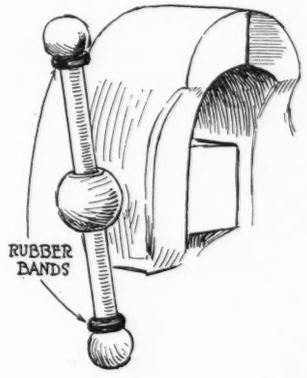
Q.—Why is it necessary to use a different axle drive bevel gear in a right hand drive and left hand drive Dodge Bros. car.—Albert Schum Garage, Ivesdale, Ill.

Locating the steering gear on the right side of the car as is done in cars built for export, has no bearing on the rear axle construction. The differential is identical in the two cars regardless of steering gear location.

SHOP KINKS
IDEAS
That have been Found Useful

Safety First From an Old Inner Tube

A little stunt to keep from pinching your fingers while using a vise is to take an old inner tube and cut some small rubber bands from it and wrap these around each end of the handle of the vise. Then if the handle suddenly drops down there is no chance of your fingers being pinched—Theo. F. Lehde, Lehde's Garage, Addieville, Ill.



Readers of MOTOR AGE *are invited to submit ideas that they have found useful in doing some particular service job in the shop in a better or quicker way. For each one published $2.00 will be paid. Whenever possible the idea should be accompanied by a sketch or diagram from which a drawing can be made.*

Bearing Fitting with Pressure or Splash

Q.—What is the difference in fitting bearings in cars with full force oiling systems and cars with splash and circulating pump. When you have loose connecting rods on the crankshaft, which is the proper way, to renew them or file them, as there are some cars which have no shims?—J. W. Casserly, Mobridge, S. D.

In cars which have splash lubrication for the connecting rods it is considered desirable to have the bearing tight enough so that it produces a perceptible drag when turning the engine over by hand. Another way of checking is to tap the bearing with a hammer after the connecting rod bolts have been tightened, to see if a moderate tap will move the bearing back and forth on the crank pin. In both of these methods it is more or less a matter of judgment to get the proper tension.

Where oil is forced to the main bearings and then goes through a hollow crankshaft to the crank pins, the bearings should be more loosely fitted. It is commonly considered desirable to have an oil film .001 in. thick, which means there should be a diametral clearance of .002 in. One way of checking this is to put a piece of paper about .002 in. thick in the connecting rod cap before it is applied. The bearing is then fitted fairly tight as would be the case with splash lubrication. After proper fit has been obtained the cap is taken off and the paper removed and the next connecting rod is fitted.

Shim Used Under Babbitt

Now for the question of fitting. The best method is to replace the bearing where this construction is used. Another method is to remove the screws which hold the bearing in place, take the bearing out and put a liner or shim of the proper thickness between the bearing and the bearing cap. Either of these methods are considered preferable to filing. In filing there is danger that the surface will not be a perfect plane when the job is done for there are very few men who can file accurately. In addition to the difficulty encountered in this way there is always a chance that oil will leak in excessive amounts from the bearing if the cap does not fit properly. In filing the cap its dimensions are changed so that if a new bearing is installed, either the replacable type or integral type cast in, there will be a departure from the original dimensions which will cause trouble. While filing is resorted to in many cases, it often necessitates throwing away the bearing cap and replacing it with a new one when the connecting rod is later re-conditioned.

Clearing Up Electrical Troubles

Edited By A. H. Packer

Pin Breaks Off and Nothing Hits

Q.—Kindly give your opinion on this problem. A 1916 Reo six equipped with Remy ignition has had the distributor overhauled and is in good shape, but breaks the pin that holds the high tension rotor. Several garages have worked on it and installed steel pins, but the owner puts in nails and cuts them off and they hold just as good. Each pin will last from one to three miles. We tried shimming up the rotor but it did not help any. We took the distributor off and put it on a test stand and ran it at speeds up to 3000 r.p.m. but it would not break pins on test. We accordingly thought it O. K. and put it back on the car and after running about one mile it again broke the pin. When in the test stand it ran perfectly smooth and did not seem to rub anywhere.—Minden Battery Co., 517 Minden Ave., Minden, Nebr.

As there is no appreciable strain on this pin we feel that the rotor arm must be striking. Perhaps there is enough wear in the distributor shaft and enough side pressure on the distributor gear at the bottom of the shaft when installed in the engine to change the position of the rotor when operating on the car. Would suggest using Prussian blue or paint or grease on the high tension segments or needle points in the distributor cap to which the spark from the rotor jumps. Then replace on the car, turn the engine over by hand and then remove the cap to see if the Prussian blue or paint has been rubbed from the high tension segment. We believe you will find that the rotor is striking at some point. Another test would be to take a hard wood stick and allow it to rest on the distributor cap while the engine is running, put your hand over the other end of the stick and put your ear against the back of your hand. In this way you can listen to the mechanical noise in the distributor and see if there is a scratching or rubbing sound as the engine runs.

METER GOOD FOR MANY TESTS

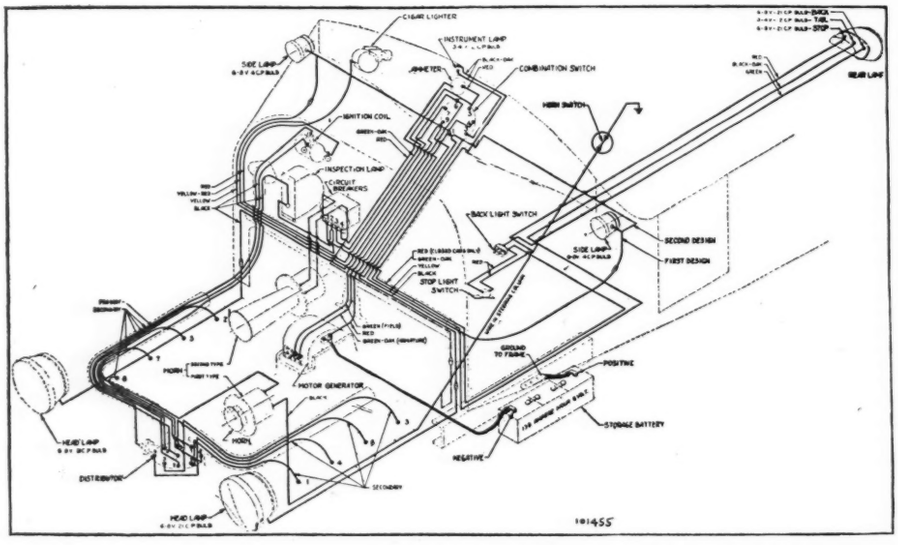
Q.—I am figuring on buying a certain voltmeter which is arranged to take cadmium tests on a 2.8 volt scale. It also has another terminal so that the scale is correct to 28 volts. Can this meter be used for anything except testing batteries? Is the 28 volt scale of this instrument accurate for testing around the automobile, as, for example, testing the generator voltage, and finding where high resistance exists in the circuit.—Carlos Farris, Tilford, Ky.

Yes, this meter would be satisfactory for all the jobs you mention. The 28 volt scale can be used to check voltage anywhere around the car. For example, you can measure the battery and generator voltage and see if you are losing too much voltage on account of high resistance in the wiring. In checking for high resistance in the starting circuit, as for example, at the ground connection you would first use the 28 volt scale and then if you got no reading you could use the 2.8 volt scale, as it would be more sensitive. The usual loss of voltage at such points is only a fraction of a volt so that the low scale would be best.

WIRING DIAGRAM NEEDED

Q.—Send diagram or give instructions for wiring 1924 Cadillac model V-63.—Cedar Rapids New & Used Car Exchange, 353 Second Avenue, W., Cedar Rapids, Iowa.

Diagram is shown in accordance with your request.

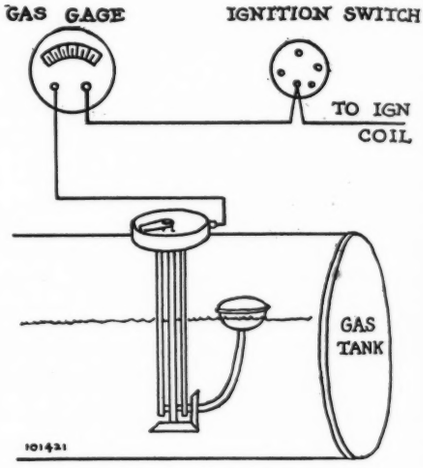


Wiring diagram of 1924 model V-63 Cadillac (*From Cadillac manual*)

Electrical Gas Gage On Chrysler

Q.—How does the electrically operated gasoline gage work on the Rickenbacker and Chrysler cars.—Geo. D. Laskey, 3431 N. Broad St., Philadelphia, Pa.

The gasoline gage on the dash is essentially a voltmeter although indicating



Circuits of electrically operated gage

gallons. A wire runs from the ignition terminal on the ignition switch to the gasoline gage and another wire from the gasoline gage to the mechanism on the tank. The mechanism on the tank is essentially a rheostat which by means of a vertical shaft, two gears and a float is rotated as the tank is emptied or filled. This puts more or less resistance in the circuit of the electrical gasoline gage and makes the needle indicate more or less. The connection to the ignition terminal is made so that the gasoline gage will not be taking any current from the battery when the car is not in use.

GENERATOR SPEED AT 40 M. P. H.

Q.—At what car speed does the Ford generator close the relay and start charging and what number of revolutions is the generator turning at this speed?—David Neil, The Neil Bros. Co., Cor. Harrison & Tuscarawas Sts., W. Canton, O.

The car speed is approximately 10.3 miles per hour. At this speed the engine is turning 420 r.p.m. and the generator is turning 630 r.p.m.

Q.—What speed does it give its maximum output and what is the corresponding number of revolutions of the generator?

The maximum output is supposed to be at 1700 r.p.m. of the generator which is 1133 r.p.m. of the engine or 27.8 miles per hour of the car.

Q.—How many r.p.m. is the generator turning when a Ford car is making 40 m.p.h.?

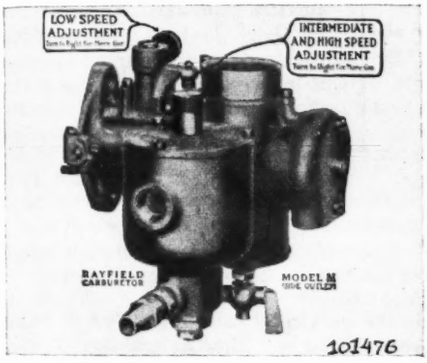
The engine r.p.m. is 1630 and the generator r.p.m. 2445.

Answers to Readers' Questions

Something Wrong Here, What Is It?

Q.—We are working on a car with which the owner is not satisfied. It is a Haynes model 60, which will only do 45 miles per hour. The gasoline mileage is also poor. The owner does not care to drive over 35 or 40 miles per hour, but we feel if we could increase the speed that we would get better gasoline mileage. Have you any suggestions?—E. D. Edney, Edney's Automotive & Radio Service, Fulton, Md.

We would suggest your checking ignition, compression, valve timing and carburetion. Check the ignition by removing



Rayfield carburetor on Haynes model 60

a wire from a spark plug and holding it near the engine so that the spark has to jump about $\frac{1}{8}$ in. Then race the engine and see if the spark misses. If you listen to the spark with a tube of paper you can check it for missing better than if you merely watch the spark, as the ear is quicker than the eye. You can check the compression roughly by turning the engine over by hand and trying each cylinder to see if it will make the crank spring up and down showing that there is little leakage. Weak valve springs might give trouble at high speed and the best way to check these is to compare them with new springs. We believe this is a rather faint possibility. Valves should be timed so that the exhaust closes about 5 deg. after top dead center. This is so near top dead center that you will hardly be able to perceive that the piston has started down.

We are showing an illustration of the carburetor giving adjustment. Adjustments should be made with engine hot. With engine idling turn the low speed adjustments to the left until engine begins to slow down and then to the right one notch at a time until engine idles smoothly. High speed adjusting screw is made accessible by removing the hot air elbow in the carburetor and is found in the air intake cone. Do not move this screw more than ⅛ of a turn at a time. Turn it to the right for a richer mixture and to the left for a leaner mixture. This setting is important in getting economical operation. For this reason this adjustment should be as lean as possible, at the same time retaining good acceleration. If the high speed adjustment is entirely wrong turn the screw all the way in and then unscrew it one and three-quarters turns. The proper setting will be somewhere between 1¼ and 2 turns.

WET GAS AT END CYLINDERS

Q.—I am taking care of a small fleet of trucks and have run across a case of trouble that I never experienced in ten years repair work. We have seven trucks with Model C-4 Continental engines. Two of them foul the No. 1 spark plug. When plug is removed it seems to be wet with gasoline.—John Del Monaco, 3127 W. Lake St., Chicago.

We believe the trouble is due to the use of heavier gasoline than has been used in previous years. As an experiment you might try some other make of gasoline or high test gasoline. When no hot spot is used there is a tendency for the gasoline to collect on the walls of the manifold and be carried along in drops to the front and rear cylinders. If you do not wish to install a hot spot manifold you might try drilling a small hole in the manifold near the cylinder which causes the trouble. You might try a hole about $\frac{1}{32}$ in. in diameter at first. This will allow a little extra air and may dilute the mixture so that this trouble will be overcome. Another possibility is to install some vaporizing device in the intake manifold which will take the wet mixture from the walls of the manifold and throw it back into the center of the air stream.

A LITTLE ARITHMETIC

Q.—How many revolutions is it necessary for the rear wheels of a Pontiac, using 29 by 4.7 tires to turn in order to show one mile on the speedometer.—W. S. M.

To find the distance around the wheel we multiply 29 by 3.1416 which gives 91 in. Changing this to feet by dividing by 12 gives 7.6 ft. There are 5,280 ft. in a mile and when we divide 7.6 into 5,280 we get approximately 694 revolutions which the wheel must make to travel one mile.

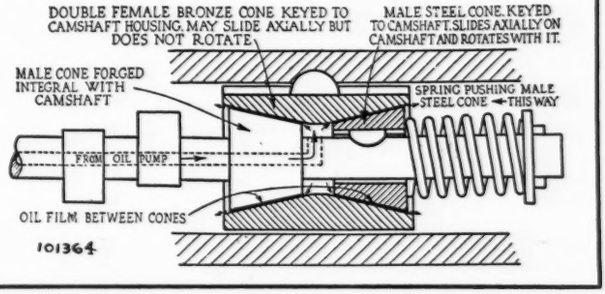
Camshaft Brake on Wills Sainte Claire

Q.—Your interesting article in the Reader's Clearing House section of Motor Age of October 8th, 1925, in regard to the Wills Ste. Claire fan releasing mechanism has come to my attention. Would appreciate it if you could enlighten me on the camshaft brake mechanism mentioned in the same article.—Arnold Hull, Automobile Instructor, State Trade School Garage, New Britain, Conn.

We are showing a sectional view of the construction in question. The reason for using such a device is that variation in the pressure on the cams due to the valve spring tends to retard the rotation of the camshaft at certain times and to accelerate it at other times. This reversal of pressure produces an unsteady rotation and results in noise and undue wear. The noise is particularly noticeable at low speeds. The brake mechanism illustrated is intended to eliminate this unsteadiness.

The end of the camshaft has a male steel cone forged integral with it and another male steel cone is keyed to it. The latter cone rotates with the camshaft, but may slide axially within it. A coil spring pushes the keyed spring cone toward the other steel cone, compressing the female bronze cone between the two rotating steel cones. The friction thus created is enough to give the desired braking effect and to steady the rotation of the camshaft.

The camshaft is hollow, and oil under pressure from the oil pump fills the camshaft bore. Oil comes out of the camshaft bore through a hole drilled between the two steel cones and lubricates the surfaces in contact on the steel and bronze cones. As the camshaft rotates, the oil is automatically forced from the small end to the large end of the rotating steel cones by the action of centrifugal force and the increased oil pressure. As the flow increases with the speed of camshaft rotation, more oil is forced out between the cones as the speed of the engine increases, lessening the friction between them. The braking effect, which is only needed at low speed, is consequently reduced as the speed increases.



Sectional view of Wills Sainte Claire camshaft brake

Better Brakes *on* Cars Shown *by* Second Week Testing *in* Kansas City

Improvement Is About 12 *Per Cent Over Year Ago When Safety Council Started Campaign—More Shops Giving Service*

By BEN S. BROWN

THE second annual "Better Brakes Week" conducted by the Kansas City Safety Council showed a substantial improvement in conditions since the brake test week of last year. For one thing, the public is obviously giving more attention to brakes, and welcomes the annual incentive to such attention. For another thing, the city is better provided with facilities for brake service, of which the motor car owners are evidently taking advantage.

The brake week of 1925 showed about 15,000 cars tested, of which 58 per cent were O. K. as to brakes. This year, about 20,000 cars passed through the testing station; and 71 per cent were given O. K. The net improvement is figured as about 12 per cent—that is, brakes generally are 12 per cent better over the city than a year ago. This meant that 8,000 cars badly braked last year, are well braked this year.

The Safety Council, besides usual publicity, used several new items this year. It secured a specially drawn and printed O. K. sticker, distinctive. It provided 5,000 rear-window stickers which motorists used on their cars before and during the campaign, announcing "Test Your Brake for Safety Sake"—this being the slogan of the week. Five thousand red cards, "Your Safety Depends on Brakes," provided by a national association, were distributed. Ten thousand locally prepared cards, announcing the campaign and locations, were distributed by the police. The Automotive Trades Association provided speakers for radio programs, telling reasons for attention to brakes; which gave more than city-wide publicity to the subject.

The gain in number of cars tested indicates education of the public especially, for the reason that the testing was done by the same men as last year, but at two stations instead of three, and in five days against 5½ days last year.

The larger number was the more easily handled, because on the first days a large number of trucks were tested, at a station designated for commercial vehicles. Four hundred firms had been asked to send their trucks to this station, which many did. Some 40 publications going to various trades in Kansas City, announced the campaign, and promoted interest of commercial car owners in it.

THANK YOU!

Your Brakes Have Been Inspected and Found—DEFECTIVE
We recommend that you have them

---Adjusted
---Relined

Don't neglect to have them serviced, adjusted, or relined by men who understand brakes, and who are equipped with special brake service machinery to give you a good job.

"Make Kansas City Safer" by Helping to Prevent Accidents

Kansas City Safety Council



These cards helped make Kansas City's brake week a success. The O. K. was printed as a sticker and placed on the windshield of every car whose brakes were approved. The other card was used to advise owners whose brakes were defective to have them adjusted or relined

The improvement of 12 per cent—or, estimating total cars in the city on the basis of those tested, as 8,000 more well-braked cars than a year ago in Kansas City—doubtless does not represent all the gain. The fact that several brake stations, officially designated by manufacturers, which advertise their service, are operating now; that many garages have well equipped brake service departments; that brake service is being really merchandised now; that the public has been consistently hammered on the subject through the year—all these things suggest that many owners doubtless are well satisfied with the condition of their brakes. This improvement does not all appear in the figures.

Strangely, only a small proportion of garages, however, have yet taken up brake service energetically. A few are equipped. They merchandise the service; they send circular letters to their customers and to a list—and they seem to be getting this increased volume.

It is estimated that about 20 garages and stations are giving complete brake service this year, who were not equipped for it a year ago. The influence of these is being felt through the trade, a pronounced increase being reported in the use of the standard and higher quality supplies, suggesting that the public is being educated to demand the better materials even of those who do not maintain the higher standards of equipment and service.

Another interesting cumulative result of the two brake campaigns, is the movement to arrive at a flat rate schedule in brake service. This movement is being encouraged by the Automotive Trades Association, a few of the members now operating flat rates for brake as well as other service in their garages.

The Safety Council had the cooperation of the Association in the campaign; the association holding a special brake short course prior to the week of the campaign, for arousing support and inspiring efforts towards preparations to render efficient service. Many garages and brake stations displayed a painted sign "Better Brakes—We Fix 'Em."

"Better Brakes" talks were made over the radio by George W. Arnold, president of the association; Orville Gault, secretary; Orville Gilbert, and Frank Dearinger.

Byrd's Polar Trip Made with Federal Mogul Bearings

It has developed, in connection with Lieutenant Commander Richard E. Byrd's epoch making flight, recently made from King's Bay to the North Pole and return, that Federal-Mogul bearings were used.

All three engines of the "Miss Josephine Ford," the Fokker plane in which the flight was made, were Federal-Mogul equipped.

Prior to re-conditioning for the flight, the plane had been flown 17,000 miles in exhibition and demonstration events. The distance flown to the Pole and return was approximately 1,600 miles and the time consumed was 15 hours and 30 minutes. The average speed was approximately 103 miles an hour.

FOR INCREASING SHOP PROFITS

Engine Stand for Ford Overhaul

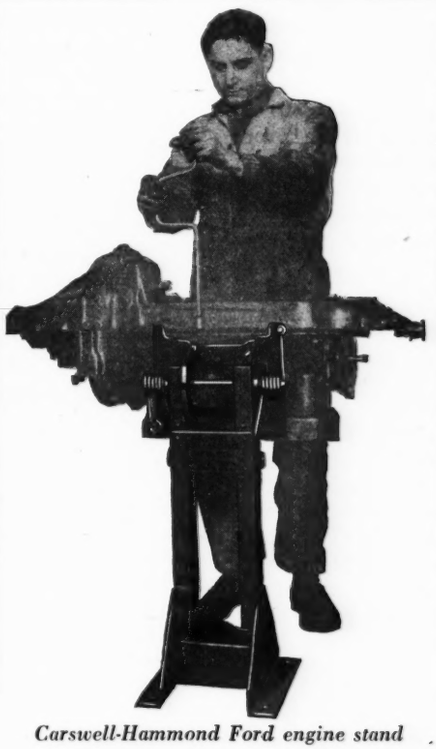
A new all-steel Motor Stand for Ford overhaul is being produced by Carswell-Hammond Manufacturing Company, Boone, Iowa. While this steel outfit weighs less than half the weight of the cast stand it is stronger and indestructible. The table or head is cast steel and the base of the stand is constructed of steel riveted together in a way to make it very rigid. The company says this stand does twice the work of its cast stand, handling the complete engine including the crankcase and transmission cover. It is termed a three-way stand, taking care of all operations in overhaul. The stand does away with bench plates, assembling stands and other paraphernalia. Heavy coil springs help the shop man turn the engine from one position to another. Price, $29.50.

Airshot Lubricator

Designed to save time in lubrication work and economize in the use of lubricants the Airshot Lubricator is an offering by the Boston Welded Products Co., Inc., 51 Ellery St., Boston, Mass. This is a one-man machine. Economy in use of lubricants is obtained by means of a check valve which enables the operator to disconnect the coupling at the end of the Airshot Compounder the instant the lubricant is forced through the bearing. The compounder is the chief feature of the outfit. When the coupling at the end of the compounder is attached to the nipple the lubricant is released into the bearings under normal air pressure. But should the user find the bearings clogged by a simple trigger movement with one hand he can exert a pressure upward to 10,000 lbs. to the square inch and force lubricant through the clogged member. Illustration shows compounder in use. Price $75.

Brake Drum Lathe

Tru-Drum Lathe is the name given to a device produced by J. D. Clyder, Los Angeles, Cal., which is designed to turn down brake drums without removing them from the wheel. It is driven by a 1/3 h.p. Westinghouse motor and it is claimed that the entire operation can be completed in 20 minutes. The wheel and brake drum with or without the tire is placed on a mandrel of the lathe and the cutting tool is then set the same as on any lathe. Power feed and automatic shut off are provided. The lathe is shipped complete with tool holders, wrenches and a complete set of mandrels.



Carswell-Hammond Ford engine stand

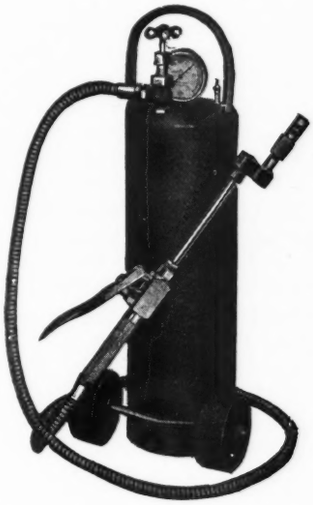
White Compression-Loss Micrometer

In the White Compression-Loss Micrometer, manufactured by the Leak Micrometer Corporation, 1068 Mission Street, San Francisco, is a precision instrument designed for measuring compression loss in engine cylinders due to leakage. The makers say this device enables the user to determine exactly what per cent of compression is being lost through piston leakage in each individual cylinder, also to determine what per cent is being lost through valve leakage in each individual cylinder. It will discriminate valve leakage from piston leakage, thereby enabling the user to go directly to the seat of the trouble. These determinations are easily made without dismanteling the engine in any way except to remove the spark plugs—which is one of the strong features of the instrument. Price, $50. Collapsible tubular tripod additional, $4; leather carrying case for instrument, additional, $7.50.

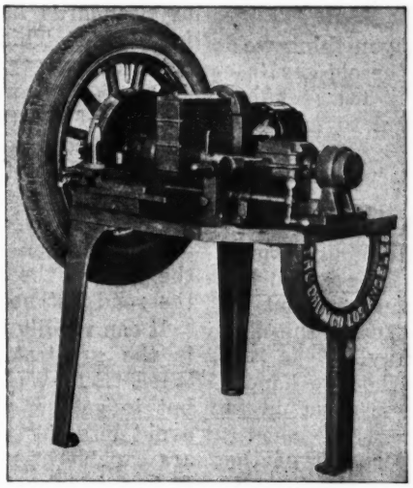
Gladacres Tools

In connection with the description of the new Gladacres wrench for the back main bearing of Fords, published in the June 24 issue of MOTOR AGE, the address of the manufacturer, Gladacres, Inc., was erroneously given as Rossville, Ill. The company is located at Rushville, Ill.

The company reports that it now has made this new wrench available for work on the old model Fords as well as the new through the production of a special main bearing catch tray to be used in connection with the wrench. The new tray sells for $1 alone or for 75 cents when purchased in connection with the wrench set which includes a tray for use with the new model Fords. The price of the wrench set is $2.50, making the price for the extra tray and set $3.25.



The compounder with this Airshot Lubricator develops 5 tons pressure



Time is saved with this device which trues drum on the wheel



These precision instruments tell the cause of compression losses

Automobile Salesmanship as Taught by Studebaker

(*Continued from page* VG

to handle the prospect who wants to know; when and how to explain mechanical features; strengthening the prospect's confidence through the reserve talk on features of engineering design, materials and workmanship; how to bring out other elements in the reserve talk which will help insure the sale.

Unit IV—Overcoming Objections and Doubts. How to dispose of objections in such a way as to satisfy the prospect without raising arguments or new objections; handling unfavorable personal reactions; meeting competitive claims and criticisms; when and how to make competitive comparisons; swinging back into constructive selling.

Unit V—Dealing with Prospects. Importance of good sales technique; a working classification of automobile prospects; adaptation of selling methods to individual prejudices or requirements; intensifying the prospect's desire for a Studebaker car; handling difficult situations; clinching the order.

Unit VI—Reaching Out for Prospects. Practical methods of analyzing territory and locating fresh prospects; securing the cooperation of Studebaker owners; cultivating boosters and other good sources of new prospects; getting in touch with the new prospect, using system to help build sales; opportunities in Studebaker salesmanship.

One thought running through the whole course is that the salesman must work with a definite plan in mind. He must know his story and proceed logically and as quickly as possible to the point of getting the order.

The particular point is made that the salesman must sell the new car before he talks trade with respect to the prospect's old car. The lesson on this point says:

"The salesman who is following a plan can come back to it after every interruption. Take one of the most common difficulties in automobile selling—that is, the situation which arises when a prospect backs away from looking at a new car and insists in getting first of all an excessive trade-in allowance for his old car. Here is a condensed account of one such case during a special investigation of this particular problem:

"My wife and I drove up to the salesroom in a —— 1923 touring car. I told the salesman we might be interested in a Big Six Duplex. He immediately led the way across the floor to a car of this model, opened both doors and invited us to step in.

"At this point my wife broke in, 'Don't you think we'd better find out first what we can get for the old car?'

" 'Yes,' I said to the salesman, 'there is no use spending your time or ours unless you are prepared to make an attractive price.'

" 'Sure,' replied the salesman obligingly, 'we'll step out and take a look at it.'

"Thereupon we adjourned to the curb and I started to show the excellent condition of my car. He finally named his price which I claimed was too low. He assured me it was the best he could do. After a little argument on this point, and without any further reference to the new car, I cut off the discussion by driving away.

"The salesman in this case didn't know how to handle the situation, although it is one that must come up in many interviews. He had no plan."

The statement is made that only 12 per cent of the salesmen who faced similar situations during the investigation showed readiness to meet them with methods which could reasonably be expected to succeed with the average prospect.

Good Automotive Lighting Is a Service Station Job

(*Continued from page* 13)

In connection with good automotive lighting and servicing the work being done by the Nela Park laboratories of the National Lamp Works at Cleveland is worthy of note. Here experimentation is constantly being carried on to determine the types of equipment and adjustments that will give the most satisfactory service under actual night driving conditions.

Test cars are driven by trained observers under all kinds of conditions, with varying equipment, and the results noted. Starting with the objective of plenty of illumination for safe night driving the observers first got what was considered good lighting both at the sides of the road and straight ahead and then set out to obtain this same result so that the driver coming against such a light would not be dazzled or even annoyed by glare.

The desired results have been obtained in the Nela Park tests through the following steps:

1. An abundance of light.
2. Improved equipment.
3. Proper adjustment.

These three factors it is possible for every automotive service shop to provide for its car owning customers. They involve both the selling of merchandise and the performing of maintenance service—both of which are profitable enterprises when intelligently done.

On the service side these things are required:

1. Frequent inspection of the lighting system to determine condition of generator, battery, wiring and lamps.
2. Adjustment of generator charging rate in accordance with service requirements.
3. Maintenance of battery in fully charged condition.
4. Repair of broken insulation, faulty connections, switch, etc.
5. Installation of needed accessory lights.
6. Polishing or resilvering of reflectors when needed.
7. Focusing and adjustment of lights.

When headlamps are rightly focused they throw a beam of light straight ahead and downward, but not upward into the eyes of approaching drivers. They also distribute the light across the roadway so that the sides are lighted. The focusing and adjusting of headlamps is easily done in almost any shop that possesses a few simple tools. One essential is a white wall upon which to throw the light. For this purpose the American Automobile Association in co-operation with the United States Bureau of Standards has prepared an official headlight adjusting chart. This chart may be purchased at small cost from various agencies supplying lighting equipment.

One factor entering into lighting service is the introduction of the two-filament depressible beam bulb. This bulb has been adopted as standard equipment by approximately 20 manufacturers with a combined output of about 1,000,000 cars a year. Headlamps equipped with this bulb are focused with the beam in the normal position and then when the beam is depressed to avoid glare in the eyes of the other drivers it still throws full light on the road but not so far ahead.

It can readily be understood that the thing to be desired is the greatest possible amount of light on the road WHERE IT WILL DO THE DRIVER THE MOST GOOD, but in getting this light on the road it is necessary to avoid blinding the other driver. Not many car owners are capable of maintaining their lights in this condition. It is a job for the service station.

(In next week's issue of MOTOR AGE an article by A. H. Packer will take up the detailed procedure in headlight adjusting.)

EDITORIAL

A Producer Becomes a Consumer

WITH the formation of the Hertz Drivurself Stations, Inc., General Motors Corp., the largest single producer of passenger cars with the exception of Ford, has become a commercial user of its own vehicles. Never before in the history of the passenger car business has a producer become a consumer. Trucks and cabs and buses have been used before by their builders, but never passenger cars on a commercial scale.

The new operating company plans to establish branches in every American city of more than 25,000 population. Under the new system a renter can drive a car from one city to another, leave it at the authorized Hertz station at his destination point, and pay only for the mileage in one direction. The system presents some very interesting possibilities.

It is certain to be a revenue producer and it will cater to a large class which either has no residence in the legal sense, or the individuals of which do not care to tie up in a quasi-permanent investment the money that is required to purchase a passenger car. The vacation tourist will welcome an opportunity to "buy" a car for a few weeks without being assessed for the depreciation which he would lose were he to buy a new car in the spring and sell it in the fall.

The outcome of this new venture on the part of an automobile producer will be watched closely by every branch of the industry because of the many angles of conjecture that the subject brings up.

The Ax Fails

CUTTING of prices to maintain his position as the sales leader of the automobile industry seems to have failed Henry Ford. In the middle of June, Mr. Ford slashed car prices for the second time in 1926. If Wayne County, Mich., which includes Detroit, may be taken as a typical instance, the price cut had no startling effect.

For the first six months of 1925, Mr. Ford's new car registrations in Wayne County were but 61.7 per cent of his 1925 registrations for the same period in the same territory. In June, his registrations in this county were 51.5 per cent of those for June, 1925.

For the first six months of 1926, Mr. Ford's new car registrations to those of all other members of the N. A. C. C. was 29.19 while in June his percentage raised to 32. On the other hand, Ford in June lost 48.5 per cent of the business he enjoyed in June last year, while all other N. A. C. C. member companies, taken as a whole, gained 20.2 per cent over June, 1925.

From these figures it is evident that price slashing alone will never maintain the commanding position in the automobile industry that Mr. Ford has enjoyed for so long a time.

An Old, Old Story

"THREE months in this town," said the man at the gas station. "Now I'm beginning to make a little money. Came here from Chicago where I had a good business as far as volume is concerned, but I made no money. Too much credit 'put me on the bum.'"

It was the old old story of being too easy, of mixing personal loans with business transactions. It never worked and it probably never will. Now this repairman from the big city is putting into practice some of the ideas he has gleaned from trade papers but never had the nerve to use. He is using a flat rate table as his service salesman. When asked the price of a job he merely lays the chart before the customer without comment. It is evident that he is working on the square and he gets the business.

With flat rates he is insisting on cash payments. He is making some money and he is not kidding himself with paper profits that never turn into cash.

The Electrical Department

IT was a corner garage at the outskirts of a small town but it boasted a complete electrical department. There was a test bench worth five hundred dollars or so, an undercutter, growler, and miscellaneous small tools needed for this sort of work. It seemed that such a place could hardly get enough electrical work to make such an investment pay. So the proprietor was asked whether the department supported itself or not.

His answer was, "No, but we still feel it worth while, because our electrical equipment enables us to do a complete job, and the way we are situated it would force our customers to go a long distance for their electrical work if we were not prepared to handle it properly."

There is no question but it is ideal to have each department stand on its own feet, but there are exceptions. The air hose brings in no cash but contributes to the profits of the business as a whole by bringing in customers. The same applies to the rest room equipment, the supply of ice water or the information bureau maintained for the benefit of transients.

So with the electrical department. It should support itself if possible, but even where this is not possible it is still worth while for the complete service satisfaction it gives.

FACTORIES OPERATING ABOUT

Several Companies Are Pushing Production Up

Absence of General Price-Cutting Is Feature in Contrast to Last Year

NEW YORK, July 14.—Several companies that have been on a materially reduced production basis because of model changes are already beginning to advance the rate of output, but as a whole the industry is on the regular early summer schedule of 20 to 30 per cent under the peak rate of the spring. It is too early to say whether the late summer market will show the normal upturn, but all signs point to a major degree of confidence in the outlook on the part of the big producers.

Perhaps the outstanding feature of the period is the absence of price-cutting, which began to be general about this time last year. The producers are evidently of the opinion that the market is still good enough to support a high output rate without the stimulus of price reductions, which could be established without serious embarrassment by several of the strongest factors in the field. An important new model was announced last week with prices unchanged, and this was taken as evidence of the stability of the price situation.

In the new cars a continuation of the trend toward bright colors and low body lines is observed, while the mechanical changes, so far as can be determined this early in the year, are in the direction of smoothness of operation and elimination of noise and vibration. But basically, unless some companies introduce unforeseen innovations, the changes this year are likely to be less radical than ever before.

The avoidance of costly redesigning of models is contributing to the prosperity of the companies, most of which have been able to establish economical production in accordance with the continuance of a standard design. Material costs are still declining and are well below the level of a year ago at this time.

Extra Nash Dividends

KENOSHA, Wis., July 12.—At a meeting of the directors of the Nash Motors Company, action was taken in the form of establishing the stock on a regular dividend basis of 50 cents quarterly per share, and declaring the $1 per share covering the first two quarters of this fiscal year which began December 1, 1925, and declaring an additional dividend of $1 representing an extra dividend of 50 cents per share for the last two quarters. Both dividends are payable August 2, 1926, to holders of stock at the close of business July 20, 1926. The company reported for the second quarter of its 1926 fiscal year covering the three months ending May 31, 1926, after deduction of all manufacturing expenses, including depreciation, selling and administration and provision for all taxes including federal income tax, the net consolidated income from Nash Motors Company and its subsidiary, the Ajax Motors Company, amounted to $6,010,824.45. Adding to this the income for the first quarter amounting to $4,137,508.16 gives the company earnings for the first six months of $10,148,332.61.

Gardner Sales Gain

ST. LOUIS, July 12.—A report of sales by Gardner distributors during the first five months of 1926 shows that the popularity of the Gardner eight-in-line and Gardner six is not confined to any one section of the country. Gardner sales at 12 key cities from coast to coast show an average increase of 122 per cent for the first five months of the current year compared to those for the same period of 1925. The actual sales increase for each of these 12 metropolitan districts follows: Kansas City, 298 per cent; St. Louis, 162 per cent; Chicago, 144 per cent; Portland, Oregon, 90 per cent; Seattle, Wash., 127 per cent; Waterloo, Ia., 37½ per cent; Philadelphia, 161 per cent; Columbus, Ohio, 116 per cent; Charleston, W. Va., 35 per cent; Buffalo, N. Y., 25 per cent; Rochester, N. Y., 100 per cent; New York City, 171 per cent.

New Willard Addition

CLEVELAND, July 12.—The Willard Storage Battery Company will immediately begin the construction of an additional building at its 131st Street plant. H. K. Ferguson Company has the contract for the structure which will be one and three-story construction of reinforced concrete faced with brick and cost $50,000.

May Cease Selling Accessories

PHILADELPHIA, July 12.—A report is prevalent here that the Ford Motor Co. plans to cease selling accessories. The change, it is understood, will be gradual, in order to clean up accessories now on hand. Dealer dissatisfaction is reported to be the cause of the contemplated change. The Ford plan is said to have reduced profits Ford dealers previously made on accessories. The Ford Motor Co. denied it intends quitting the accessory business when rumors of a change were cited.

Buick Records Broken

FLINT, July 12.—The Buick Motor Co. has broken all its previous sales records, figures released by the factory, today, indicate. During the first 11 months of the fiscal year, to July 1, deliveries totaled 226,583 cars, exceeding by 66,584 cars the same period a year ago, or a gain of 41.5 per cent. It is 55,534 greater than the best previous entire fiscal year. The first six months of 1926 saw 131,427 new Buicks sold, or 25,729 greater than the best previous mark established in 1923. Deliveries in the first six months of 1925 were 93,835, leaving a difference in favor of the 1926 period of 37,592 cars. June also set a new record with 21,401 cars sold. The best previous June was in 1923, when 20,163 units were delivered to purchasers.

Dodge Brothers Gains

DETROIT, July 12.—Dodge Brothers dealers in the United States set a new high record the first six months of this year when they delivered 173,373 passenger cars and trucks. This constitutes a gain of 52,669 vehicles or 43.6 per cent over the deliveries for the first half of 1925. Incomplete figures for Canada indicate that the gain in retail deliveries by Dodge dealers approximates 65 per cent. Dodge and Graham shipments during the first six months of this year were 207,115, a gain of 68,345 or 49.3 per cent over the same period of 1925.

New Moon Model Soon

ST. LOUIS, July 12.—Payment of the fortieth consecutive dividend by the Moon Motor Car Company was authorized recently when directors of the company met in St. Louis. This quarterly dividend of 75 cents on the common stock, is payable August 2 to stockholders of record July 15. The twentieth year of operation of the company will be celebrated by the production this month of a new light six car, which will embody European features of economy, speed and appearance. The new model will retail for $995.

Flint Plans Announced

FLINT, Mich., July 12.—R. H. Mulch, vice-president, tells stockholders Flint car will be made in another Durant factory. Details on page 39.

Auburn at Capacity

AUBURN, Ind., July 12.—Plunging into the last half of the current year under full capacity production the Auburn Automobile Company announced that from all indications all former retail sales figures will be shattered before the end of the year. The first half of 1926 marked the greatest boom the factory has ever enjoyed and sales on all models have constantly mounted even beyond the capacity of factory production.

20 PER CENT UNDER PEAK

Nash Sets Records

KENOSHA, Wis., July 12.—Swinging through June with a sales and production total 63.7 per cent higher than the greatest previous June, Nash Motors now adds another month to its chain of broken records. "This makes 22 consecutive months, with one exception," says E. H. McCarty, general sales manager of the company, "that Nash sales have surpassed the figures set by the corresponding months of the previous year. The June total brought the volume for the first six months of this year to a point 88.3 per cent above the sales mark for the first half-year period of 1925.

"We have produced and sold," says Mr. McCarty, "as many cars in the first six months of this year as we did in a full nine months of 1925. This accomplishment becomes still more notable in view of the fact that 1925 was the greatest year in Nash history, overtopping 1924 by 79.2 per cent."

A review of the Nash sales gain for the first six months of this year reveals the following figures:

January 1926 Nash sales gain over biggest previous January	**82.8%**
February 1926 Nash sales gain over biggest previous February	**96.9%**
March 1926 Nash sales gain over biggest previous March	**108%**
April 1926 Nash sales gain over biggest previous April	**70.9%**
May 1926 Nash sales gain over biggest previous May	**44.3%**
June 1926 Nash sales gain over biggest previous June	**63.7%**

A view of the annual production figures since 1921 tells the following story:

1921 sales	**20,850 cars**
1922 sales	**41,652 cars**
1923 sales	**56,677 cars**
1924 sales	**53,626 cars**
1925 sales	**96,121 cars**
First six months of 1926	**78,172 cars**

Peugeot Builds Electrics

PARIS, June 30.—(By Mail).—Peugeot has gone into construction on three types of electric vehicles, comprising a 2000 pound truck, a taxicab and a light sedan. These vehicles are being built under Krieger patents and are types which have been in service for a long time, the only modifications adopted by Peugeot being the use of a false radiator and hood so as to give the electrics the same external appearance as gasoline vehicles. With the depreciation in the value of the franc and the important development taking place in the production of electricity from water power in the French Alps, the outlook is favorable for the electric vehicle. Lucien Rosengart, vice-president of the Peugeot Company maintains that gasoline imports could be reduced by 15 million gallons a year by the use of electrics for city service. It is understood that Peugeot intends to develop the sale of electrics in France and to put electric taxicabs into service in Paris.

Chrysler Output Gains

NEW YORK, July 12.—During the first half of year, Chrysler Corp. produced 76,773 cars, a gain of 34½ per cent over the corresponding period in 1925, when production totaled 57,161, it was made known today when Chrysler production figures of 15,232 for June were announced.

Production during the last six months of 1925 was 80,670 and this year's schedule calls for 101,612, an increase of 26 per cent.

In connection with the production announcement, Walter P. Chrysler, president said:

"Distributors and dealers have on hand less than three weeks' supply of cars. The corporation has 3,749 points of business contact through distributors, dealers, associate dealers and the like. On April 20 the first shipments of the Model 60, the new light six, were made. During the 60 days following, 18,000 were bought by the public.

"We have advised our distributing organization we intend to produce a new light four cylinder model, the '50.' While no announcement concerning mechanism details have been made, we have on our books orders for three months in excess of what we originally planned to produce of this model during the remainder of the year and consequently our production schedule will have to be increased."

Tire Prices Reduced

AKRON, July 12.—Following in the wake of tire reductions by Goodyear Tire & Rubber Co. and a group of other leaders, a general revision downward throughout the tire industry will be made effective. Companies making revisions with Goodyear, were Kelly-Springfield Tire Co., U. S. Rubber Co., Fisk Rubber Co., B. F. Goodrich Co., and Dunlop Tire & Rubber Co.

Announcements by Firestone Tire Co., General Tire Co. and the Miller Cord Tire Co., as well as by others of the leading group, were to be made as rapidly as new lists were completed.

The Goodyear reduction ranges from 10 to 20 per cent on tubes and is approximately 10 per cent on casings. A 10 per cent reduction was made in February.

Kelly-Springfield reductions ranged from 2 to 20 per cent. Dunlop reductions ranged from 10 to 25 per cent, Dunlop balloon casings are now at the lowest ever offered, it declares. Goodrich reductions range from 10 to 22 per cent. No percentages were announced by U. S. or Fisk but the range is expected to approximate the competitive changes.

New Ford Plant

LOS ANGELES, July 12.—The Ford Motor Company will soon start the erection of a new and larger assembly plant at Long Beach, located about 20 miles from Los Angeles, which is expected to be one of the most modern establishments of its kind in the Ford chain. When the new plant is established, the Los Angeles factory branch will be abandoned, as the entire southern California territory will be served from Long Beach, which is developing excellent harbor facilities, being located directly on the ocean. The Ford interests have been negotiating for several months with the municipal authorities of Long Beach for certain additional harbor development work to make feasible the establishment of the proposed big factory. The city of Long Beach has acceded to the Ford demands, and the transaction is now understood to be definitely closed.

Mill Site Purchased

PINE BLUFF, Ark., July 12.—Purchase of a mill site in Dumas, Ark., together with more than $1,000,000 worth of hardwood timber land nearby, and the signing of a contract by the Stimson Veneer and Lumber Company of Memphis to furnish wood for the Season-Dunning Body Company in Pine Bluff, was announced in Pine Bluff recently. Within a short time the Stimson Veneer and Lumber Company will move its mill to Dumas, and operations will begin soon after the removal. The new mill will operate steadily, will have a capacity of 50,000 feet of hardwood timber per day, and will employ more than 100 people. The Season-Dunning body plant was opened here in Pine Bluff recently for the manufacture of body parts for Nash motor cars.

Dodge Bros. Drops Vacation

DETROIT, July 12.—No summer shut down will be effected by Dodge Brothers, Inc., for inventory or employes vacation. The night force is being eliminated and part of the employes transferred to the day shift. Production is averaging about 1,250 cars a day compared with highest production attained last year of 1,100.

Special Packard Dividend

DETROIT, July 12.—A special cash dividend and a stock dividend were declared by directors of the Packard Motor Car Co., at a special meeting here. The directors also fixed the dividend rate on the increased capital of the company. A 5 per cent special cash dividend payable July 31 to stock of record July 17 and a stock dividend of 15 per cent payable Aug. 31 to stock of record Aug. 14, were declared. This brings the outstanding stock of the company up to $30,000,000, an increase of 392,194 shares of a par value of $3,921,940.

Goux Wins French Grand Prix Without Opposition

Three Bugattis Start Out of 12 Entries—Two Develop Trouble Early

PARIS, June 28—(By Mail)—Jules Goux, driving a 91½ inch supercharged Bugatti, won the French Grand Prix on Miramas track, yesterday, at an average speed of 68 miles an hour, for a distance of 300 miles. Instituted in 1906, the French Grand Prix has been recognized for the last 20 years as the most important speed contest in Europe. This year only 12 entries were secured, but Delage, Talbot and Sima-Violet were unable to be ready in time, with the result that the three Bugattis were the only ones to face the starter.

Almost at the outset two of the Bugattis developed trouble, the one driven by Pierre de Vizcaya dropping out and the car handled by Costantini being flagged with 16 laps to go. Goux earned about $4,000 in cash prizes, while the loss to the club, which under its agreement was not empowered to cancel the race, is estimated at $10,000. Notwithstanding this failure, the Automobile Club of France will hold its Grand Prix next year for 91½ inch cars with superchargers. It is intended that this race shall be run on a road circuit.

In an attempt to save this race from entire failure, a speed contest for 67½ inch and smaller racing cars was put on the program. Keen competition was expected between the six cylinder roller bearing supercharged Amilcars and the four cylinder Salmsons, but the former, after setting a fast pace, were all retired with broken valve springs. Casse, driving a four-year-old Salmson, won at 65 miles an hour.

On account of the failure of the French Grand Prix, the leading racing events of the year will be the European Grand Prix at San Sebastian, on July 18 and the Italian Grand Prix at Monza, Italy, on September 6. Delage, Talbot, Sima-Violet, O. M., Bugatti, and Guyot will race at San Sebastian and the same cars, with the addition of Fiat and Itala are expected to start in the Italian event.

It is announced from Milan that Tommy Milton has entered two Duesenbergs for the Italian Grand Prix, with Bennett Hill and Bob McDonogh as their drivers.

Buffalo Sales Gain

BUFFALO, N. Y., July 12.—Dealers' figures indicate that used car sales here in June totaled fully $7,000 more in volume than in June, 1925. New car sales were 5 per cent greater than in June, 1925, bringing the gain of 16.33 per cent average gain for the first five months of the year down slightly at the close of the sixth month. In the first five months of 1923, 11,400 new cars were delivered in Buffalo. That was the record peak for all time but the new car business for the first five months of 1926 fell but a few cars short of the peak.

Son Joins Firm

ST. LOUIS, July 12.—Richard W. Roberts, son of W. S. Roberts, president of the Roberts Motor Co., Chrysler dealer at 5156 Delmar Boulevard has been elected vice-president and secretary of the Roberts Motor Co. He recently graduated from the University of Illinois. The younger Roberts has worked during the summer vacations for the automobile company. He was married recently to Miss Elizabeth Tait whose father is head of the Tait Motor Co., Decatur, Ill.

Form Tire Repair School

ST. LOUIS, July 12.—The St. Louis Tire Rebuilding School, a branch of the Prentice Tire and Rubber Co. of Indianapolis, has been opened here at Garrison and Washington Avenues. The purpose of the school is the education of tire repair men in the art of rebuilding tires, especially balloon tires which ordinarily would be abandoned by their owner. The owner of the schools is William G. Prentice. The St. Louis branch is managed by Joseph Scoot who has had long experience in tire repair work here.

June Detroit Sales Down

DETROIT, July 12.—Sale of cars in Wayne County, in June, were considerably below May sales. June passenger car sales aggregated 8,366 compared with 10,444 in May. June truck sales totaled 886 and in May were 957. Fourteen tractors were sold in June, compared with 21 in May. Passenger car sales during the first six months totaled 45,532 compared with 43,497 for the same period in 1925. Truck sales during the first half of 1926 aggregated 4,926 compared with 3,697 a year ago. Eighty-five tractors were sold during the first half of 1926 while sales for the same period in 1925 were 76.

Columbus Sales Gain

COLUMBUS, July 12.—Automobile sales in Franklin county during June showed a small increase over the records of June of last year, according to the report of County Clerk Harold C. Geckenbach, with whom bills of sale on all transfers of automobiles must be filed. In June, 1926, a total of 1,451 new automobiles changed hands as compared with 1,271 in June, last year. The number of used cars sold during the month of June was 5,375.

Takes Locomobile Distribution

COLUMBUS, July 12.—The Columbus Locomobile Co., organized with William H. Chinn as president and general manager will soon open a distributing agency for Locomobiles at 891 North High Street. The company will soon open a service station in conjunction with the sales agency. The territory covered consists of a dozen counties in central Ohio.

Failure of Parliament Burdens Canada Trade

Remission of Sales Tax Dies in Passage and Many Dealers Suffer Losses

MONTREAL, July 12.—The automobile business, which already complained of being badly buffeted by the budget, is again the main sufferer from the trick of fortune by which a number of taxation changes which followed on the last budget go into the discard because dissolution of Parliament came before they had been ratified.

One of the most outstanding of these was the remission of 5 per cent sales tax on passenger automobiles under $1200 in value produced 40 per cent in Canada. When this passed prices were at once reduced correspondingly by most of the houses which advertise "delivered in Montreal" prices. Interviews with a number of the leading automobile houses in Montreal showed that a great many cars have been sold at the reduced rate.

The tax can no longer be collected, and it must be paid. As one of the leading vendors of low priced cars in Montreal expressed it: "Once a man has got delivery of a car at a certain price, you can hardly hope to collect any more than the original price from him. Of course, most of us in the automobile trade here have obtained the assurance of the remission, or a fixed tax paid price, from the manufacturers. So probably we can come back on the manufacturer, and make him stand the loss. But one sure thing is, someone in the trade has got to lose that 5 per cent, or at least, be out of that money until such time as he can get the Government to recompense him."

Many cheaper cars are sold on extended payments, with comparatively small instalments. The reduction in prices, coinciding with the opening of the season, formed together a powerful selling argument, and the automobile salesmen seem to have made the most of it. According to many of the firms handling these cars sales have been heavy.

"Even if the man has only paid $5 down on his car, if he has a contract for the sale of it, you can't go after him for the sales tax afterward," another of the Montreal automobile men remarked. Still another commented that while some dealers bought f. o. b. at the works and had to stand subsequent taxes and other expenses themselves, others would be able to pass the sales tax on to the manufacturer.

Heads Used Car Store

ST. LOUIS, July 12.—John F. Doyle has been appointed manager of the used car exchange of the Weber Motor Co., Studebaker distributor at Garrison Avenue and Locust Street.

Flint Car to Be Made in Another Durant Factory

All Retail Branches Also Being Sold to Liquidate Heavy Overhead

FLINT, July 12.—The Flint Motor Co. will continue to manufacture the Flint car in another Durant factory, outside of Flint, provided the stockholders approve the proposal sale of the plant to the General Motors Corp., when they meet July 15, according to R. H. Mulch, vice-president and general manager.

When the stockholders met July 1, to vote on the sale, there were not enough shares represented and it became necessary to adjourn. The General Motors Corp. has demanded that 75 per cent of the Flint stock be represented when a vote is taken.

There are 55,000 stockholders in the company holding 805,390 shares of which 548,944 were represented at the meeting. Six hundred five thousand shares are required before the vote can be taken.

After the recent adjournment, Mulch answered many questions put by stockholders and also explained the efforts of his administration to retrench on unnecessary expenses and to place the company in a better position.

The basic price of the plant besides equipment and machinery which will be sold, will approximate $4,200,000 to $4,500,000, Mulch told the stockholders.

The factory is entirely too large for the Flint Motor Co., he said, pointing out that it has been necessary for the company to carry the mammoth north unit on its books, despite the fact that it was never used for manufacturing purposes.

Besides desiring to dispose of the factory and rent quarters in another Durant unit, the Flint Motor Co. is also disposing of its 64 retail branches. The company had $5,500,000 tied up in the branches and 58 of them have now been disposed of.

"We cannot continue to operate at a loss," said Mulch, "and the commonsense thing to do is to sell and get from under the load. By reducing the overhead materially we can make money. The plant has been overorganized in size. We plan to reduce inventory, liquidate, and start afresh on a basis that should show a profit in a few months."

During June a total of 615 Flint cars were delivered and the month also saw the last of a $1,324,000 debt due to a finance company, taken care of, he said.

There are still a number of bills outstanding and the money from the sale of the factory would go to wipe out the debts of the company. Besides cleaning up the indebtedness of the Flint Motor Co. there will be about $1,000,000 cash left for operating expenses, he estimated.

Starts Truck Campaign

CLEVELAND, July 12.—C. L. Garner, sales manager of the Chevrolet Motor Ohio Company, distributor, has begun an intensive truck merchandising campaign which is new to Cleveland. He has divided the city and environs including Berea and Bedford into 11 districts each to be thoroughly canvassed by the sales staff of the 11 dealer organizations supplied by the distributor. These groups will visit every spot where it is possible to use light trucks to advantage.

Nash Dealers Increase

KENOSHA, Wis., July 12.—From Jan. 1 to June 1 this year Nash Motors Co. added 574 new dealers of whom 64 per cent were already selling automobiles of other makes. The other 36 per cent was made up of dealers who had previously been in business and re-entered it, or automotive tradesmen who had not been selling new cars. Nash's June production was 63.7 per cent ahead of the largest June in Nash history and the demand continues so great that the factory will not be closed down for a vacation.

Detroit Record Set

DETROIT, July 12.—Aaron DeRoy, Hudson and Essex distributor, set a new sales record for Detroit and Wayne county, in June, when more than 1,050 new Hudson and Essex cars were registered in his territory. "The Essex coach alone," said DeRoy, "was bought by more Detroiters than any complete line of other sixes. In fact its sales were exceeded in number only by the two lowest priced four cylinder cars."

Rice Takes Chrysler

KANSAS CITY, July 12.—R. P. Rice has been named Chrysler distributor for Kansas City. For the last 22 years he has been associated with the Ford Motor Co. in the capacity of salesman, dealer and distributor.

Michigan May Sales for 5 Months Ahead of 1925

DETROIT, July 12.—Sale of passenger cars in Michigan, for May, were 25,152 compared with 24,321 units for May of a year ago. Car sales for the first five months were 87,269, a substantial gain over the same period in 1925 when 66,871 units were sold.

Wayne county, which includes Greater Detroit, was the only large automobile manufacturing center in the state to show a decrease in car sales. Sales totaled 10,444 compared with 11,246 a year ago. Business in Wayne during the first five months showed a gain, however, over a year ago. Sales were 37,166 compared with 33,842 a year ago.

Genesee county, which includes Flint, had sales totaling 978 in May while a year ago there were 765. Sales for the first five months were 3,486 and in 1925 were 1,649. Ingham county, which embraces Lansing, bought 842 cars compared with 353 in 1925. During the first five months, Ingham sales aggregated 3,063 compared with 1,901 a year ago. Oakland county, which includes Pontiac, registered 1,202 sales compared with 858 a year ago.

General Motors Opens Atlantic City Exhibit

City Officials and Dealers Present at Inauguration of Permanent Show

ATLANTIC CITY, July 12.—The formal opening by the General Motors Corporation of its permanent exhibit on the steel pier and board walk, was one of the gala events of the season at Atlantic City.

City officials and excutives of the corporation participated in the opening, which was also attended by all dealers in General Motors products within a radius of 300 miles of Atlantic City.

Following a dinner at Hadden Hall, a spectacular parade was held, which ended at the pier, where the mayor turned the keys of Atlantic City and the steel pier over to A. H. Swayne, a director and vice president of the corporation, who officially represented General Motors at the opening. The events which followed were broadcast from station WGP.

General Motors Corporation is the first large business enterprise to open a permanent exhibit at Atlantic City, where daily persons from all the states in the Union, and from foreign lands, tread the board walk. Prediction is being made that the action of the corporation will open the way to establishing other permanent exhibits at Atlantic City by other companies.

A building 57 feet by 293 feet is utilized to display the wares of the corporation. All the automobiles, automotive equipment and other products such as electric refrigerators, farm lighting plants, etc., are shown in the big exhibit hall.

The exhibit was arranged and will be in charge of B. G. Kouther, director of sales of General Motors Corp.

New Chrysler Distributor

DETROIT, July 12.—The Chrysler distributorship in the St. Louis territory, has been taken over by Midwest Motors, Inc., a new corporation, succeeding G. M. Berry, Inc. L. M. Stewart, who has been vice-president and manager of G. M. Berry, Inc., will be president and general manager of Midwest Motors, Inc., and S. C. McCluney, who has been secretary and treasurer of G. M. Berry, Inc., since its organization, will be vice-president and treasurer of Midwest Motors, Inc., and James L. Ford will be secretary.

Buys Oakland Dealership

DALLAS, Tex., July 12.—Paul A. Stevenson, for the last seven years manager of the Oakland Motor Company branch factory here, has resigned and bought out the Toepperwein Motor Company, Oakland and Pontiac dealer and distributor in the Dallas territory. The name of the Toepperwein company has been changed to the Paul A. Stevenson Motors. The location of the business remains the same.

Authority Sees Huge Car Market in South America

Declares Manufacturers Are Neglecting Important Export Prospects

DETROIT, July 12.—American automobile manufacturers should devote more attention to developing the South American market, was the opinion expressed by Roger Newton Lagow of Buenos Aires, Argentine, who has spent several years in South American merchandising motor cars.

"South America, with two or three exceptions among the American manufacturers, has been more or less neglected from the standpoint of application of American merchandising and financing methods," Lagow declared.

"There are no car manufacturers in South America and the market is an open one, while the European market is more or less susceptible to closing, due to competitive conditions. For this reason the South American market, to my mind, opens up a broad export field to the American car manufacturers.

"South Americans prefer United States cars over the European types, a fact which is strongly borne out by sales figures, and, if for no other reason, the American manufacturers should intensify their sales efforts in South America, not only to hold the excellent business which many of them have already established, but to increase sales as well.

"A survey of sales figures for Argentine, which now has approximately 200,000 cars for a population of 10,000,000 people, or an average of one car for every 50 people, shows that the present trend has been to purchase the cheaper class of automobile.

"In 1924, when 34,760 American cars were sold, as against 927 European cars, in Argentine, about three fourths of them were in the low priced class. During 1925, when 52,989 American cars were sold against 1,676 European cars, a similar ratio existed."

Electric Jobber Expands

HOUSTON, Tex., July 12.—The Beard Stone Electric Company, one of the leading automotive jobbing houses in the southwest, has occupied its new $100,000 home at Polk and San Jacinto streets. The company specializes in electrical lines used on about 90 per cent of the standard makes of automobiles in the United States. The Houston house is a branch of the same company in Waco and was located here in 1922. Its business grew to such proportions it was necessary to have more space to take care of the demands from customers.

New Studebaker Branch

DALLAS, Tex., July 12.—The Studebaker Corporation has completed plans for a new branch factory building in Dallas it was announced by P. A. Rumpf, branch manager this week. It will be three stories high and 80 by 132 feet. The ground floor will house the general offices of the branch and the display rooms, showing the lines offered dealers. The second floor will be given over to housing the parts which the branch will sell to dealers and garagemen. The third floor will be the stock storage rooms.

Hansen Selling Radio

MILWAUKEE, July 12.—Harry M. Hansen, truck sales manager of the Curtis Auto Co., Reo distributor for the last nine years, has resigned to accept the position of sales manager of the Radio Specialty Co., Milwaukee, exclusively distributor of the Atwater Kent line in the Wisconsin territory. Mr. Hansen has been active in sales management work in Milwaukee for twenty years, nearly all of that time in automotive merchandising.

Chevrolet Leads in Spokane

SPOKANE, Wash., July 12.—Chevrolet nosed Ford out by eight cars for leadership in Spokane county during June, registration figures compiled by the Washington Automotive Trade Association show. Chevrolet registrations were 87 and Ford 80, total passenger car registrations (new car) having been 516 during the month. Ford led used car registration with 271 out of 617. New truck registrations were 39 and used truck registrations were 62. Sales were somewhat smaller than during the earlier spring months but ahead of a year ago.

European Makers Taking Interest in "Six" Types

PARIS, June 19—(By Mail)—An exceptional revival of interest in the six cylinder engine will be a feature of the next Paris automobile show, during October. Under the influence of American competition, European makers feel that they have to provide a greater degree of flexibility and better top gear performances than they have given in the past.

The new sixes will not all be the costly high grade models European firms have built in the past. Renault is laying plans for the production of a cheap light six, while the Citroen program for 1927 also includes a quantity produced "six" of about 91 cubic inch piston displacement. The French Talbot Company (formerly Darracq) is already on the market with a medium sized six designed specially to meet Buick and other American competition. Voisin already has produced a six in view of present tendency.

It is believed that Fiat policy will be towards sixes for all but the smallest types. The 509 four-cylinder model of 60 cubic inches, which was only put into production this year, and is now approaching 200 per day, will undergo no changes but the belief is that above this size six cylinders will be adopted. There are no indications of the coming of the straight eight in Europe.

New Decision Clarifies Status of "Booze Car"

Federal Court Decides Note Holder Can Collect at Time of Marshal's Sale

WASHINGTON, July 12.—Another step in clarifying the rights of an automobile dealer—the holder of automobile paper on which he has a lien and which has been seized by Federal authorities in connection with the transportation of liquor—was made by the Federal court this week in an opinion rendered by the United States District Court at Knoxville, Tenn., and reported to the Department of Justice.

The facts briefly are these: The automobile was sold by the Vester Motor Company of Knoxville to a purchaser, who was subsequently caught transporting liquor. The sale was for $570, of which $126.32 was cash, the balance of 443.75 being in notes, payable 36.98 per month. At the time of the arrest $360 was still due. The notes were held by the Tennessee Automobile Finance Corporation.

The court's decision was to the effect that the purchaser of the car, so far as the Federal government was concerned, was the holder of the title and the owner of the car and that it would be subject to forfeiture, notwithstanding a conditional bill of sale.

The court in its decision, however, declares that on sale of the car by the government, the procedure should be to first pay the court cost and then turn over to the dealer or finance company, as the case may be (holders of the notes) whatever sum is left over to apply on liquidation of same.

Chevrolet Dealers Meet

PORTLAND, Ore., July 12.—Leroy R. Fields, well known automobile distributor, and president of the Fields Motor Car Company, has returned from a business trip to Oakland, Cal., where 15 of the leading Chevrolet distributors along the Pacific Coast held a conference. The main subject of discussion was the advertising program for the next quarter, the representatives being unanimous in their opinion that the newspaper campaigns of the past few weeks had netted splendid results.

Spicer Opens in England

CHICAGO, July 12.—It is announced here that a new firm to be known as the Hardy Spicer Co., Ltd., has been formed at Coventry, England, to have sole manufacturing and selling rights in Europe and the British Empire for the products of the Spicer Mfg. Co. The new company is building a new factory at Coventry. The Hardy Spicer Co. is an outgrowth of Edward J. Hardy & Co., the head of which was Edward J. Hardy, inventor of the thermoid Hardy disc.

U. S. Makers Given Second Position at Paris Exhibit

Nation Must Belong to International Body Before Equality Treatment

PARIS, June 20.—(By Mail)—Although American automobile manufacturers will have a numerical majority among foreign exhibitors in the next Paris international automobile show, on October 7 to 17, the rules make it impossible for them to secure other than second choice stands. This show is open to all nations with the exception of Germany and draws buyers from every part of Europe and northern Africa.

The regulations dealing with foreign exhibitors states that after having taken part in three Paris shows foreign firms shall be treated on an equality with French makers, providing the nation belongs to the International Association of Automobile Manufacturers, and providing, also that the import duty of that nation before the war was not more than 15 per cent ad valorem or the equivalent.

This rule has been framed with the definite object of limiting American exhibitors to second choice stands, for the National Automobile Chamber of Commerce has no part in the International Association of Automobile Manufacturers and before the war the United States was the only nation having an import duty higher than 15 per cent. While this rule remains American makers are permanently handicapped and are at a disadvantage compared with ex-enemy nations, for Austria is already received on an equality and Germany is likely to be accepted without reservation next year.

Certain members of the American automobile industry in France consider that it is advisable for the National Automobile Chamber of Commerce to take its place on the International Association and thus use its influence against any such discrimination.

Divide Hupp Franchise

DALLAS, Tex., July 12.—The distribution of Hupmobiles in more than 120 counties in north and west Texas, in the hands of J. R. Overstreet for the last 12 years, has been divided and the retail franchise in the city of Dallas, owned by Helm-Burke Motor company for the last three years, passed to other hands. The Treadway Motor company of Dallas has become distributor for the Hupp lines in 50 counties including Dallas and took over the city franchise for retail distribution.

Air Board Provided

WASHINGTON, July 12.—The authorization of a centralized Federal purchasing board for airplanes, engines and kindred equipment, is provided for under the terms of House bill No. 11,284, which passed Congress during the closing session. The board will co-ordinate the aircraft purchasing plans of all Federal Departments and will be empowered to award bids to other than the lowest bidder, which has been impossible heretofore. During discussion of the measure the present system of bidding was scored by members of the House and Senate who declared that irresponsible manufacturers were enabled to secure government contracts from more responsible manufacturers by underbidding and then making up the difference by inferior equipment, with "a resultant loss in life and property when planes fall."

Italy Uses Wine for Fuel

ROME, July 12.—Italy will probably run its automobiles on wine in the future—at least partially so. There is a surplus of nationally produced wine in Italy and all gasoline has to be imported. In order to reduce gasoline importations, Premier Mussolini has ordered gasoline cut with nationally produced alcohol, thus using the surplus wines in this manner and at the same time reduce the importation of gasoline.

New Louisville Garage

LOUISVILLE, July 12.—Work has started on a $150,000 garage at Campbell and Broadway, to be occupied by the Packard - Louisville Motor Company, Packard distributor and the Larimore Automobile Company, Oakland and Pontiac distributor.

New G. M. Branch

NEW ORLEANS, July 12.—The General Motors truck division has opened a direct factory branch in New Orleans for the sale and service of G. M. C. trucks, Yellow Cabs and Hertz cars. The new branch will be under the supervision of F. W. Rosche.

Writer's Record of Car Expense Shows Low Cost

CHICAGO, July 12.—A writer in the Chicago Daily News, who states that he has kept an accurate record of all expenses of operating his light six automobile for 11½ months, gives the following itemized statement of expenditures:

Motor club membership	**$16.00**
Gasoline	**99.00**
Oil	**19.98**
Work done (battery charging, installation of accessories, punctures, etc.)	**22.40**
Material bought	**20.39**
Grease, polish, etc.	**7.60**
Garage, licenses, parking	**72.00**
Fire and theft insurance (approx.)	**10.00**
	$267.37

The mileage of the car in that period was 9,583, making a running expense of approximately 2¾c per mile, not taking depreciation into account.

Rubber Men Fear British Will Curtail Fall Trade

Believe Well Sustained Price Advance Only Thing to Prevent Restriction

NEW YORK, July 12.—With rubber prices fluctuating within an extremely narrow range, it is becoming increasingly evident to the trade here that unless there is a well sustained advance between now and August 1 a 20 per cent reduction in exports from the British restricted area will be made effective as of that date.

The average spot price in London from May 1 to June 30 was 21,385d., Henderson, Helm & Co point out, and on this basis, in order to maintain a minimum market price for spot rubber, 21d to August 1, it will be necessary that the average from now until the end of this month be 20.288d. The price today is 20¼d., so that it is apparent that rubber buyers face the reduction unless there is some recovery from the present dull condition of the market.

It is pointed out, however, that many of the rubber plantations have not been exporting the full quota allowable under the present current scale of the restriction system, and that this surplus on August 1 will amout to about 20,000 tons. This should be enough to make up for the 20 per cent cut in the export allowances during the remainder of the year so that the effect, if any, will not be felt next year.

Just what next year's requirements in the way of crude rubber will be is somewhat obscure, as it is known that the laboratories of the rubber manufacturing companies are making strenuous efforts at conservation of crude supplies.

Geneva Show Held

PARIS, June 23.—(By Mail)—With 30 car manufacturing firms exhibiting, America was second only to France, with 38 firms out of a total of 227 exhibitors, in the Geneva automobile show which closed its doors Sunday. The exhibition, while not having the mechanical novelties expected at the Paris and London shows, was commercially of considerable importance and united buyers in big number from Central Europe. In addition to America and France, Germany, Switzerland, Austria, Italy and Belgium were represented.

Carolina Titles Increase

RALEIGH, N. C., July 12.—Approximately 325,000 motor vehicles were registered in North Carolina as of July 1, with 10 days remaining for registration without penalty, according to an announcement from the office here of State Commissioner Doughton. The commissioner said this registration offers evidence that his estimate of 400,000 cars being registered in the course of the fiscal year will be made good.

TRADE ASSOCIATION ACTIVITIES

ALLEN HEADS SERVICE GROUP

St. Louis Association Takes Manager From Among Credit Men

ST. LOUIS, July 12.—Walter F. Allen has been made manager of the Associated Automobile Service Companies of St. Louis, succeeding J. C. Thorpe who resigned to devote his entire time to the Dix Oil Co., of which he had previously been vice-president and treasurer.

Allen was formerly connected with the St. Louis Association of Credit Men and prior to that was an efficiency engineer with the Barber-Colman Company, machine tool manufacturer of Rockford, Ill.

The new manager stated that the association would in the future give greater attention to credit and collections in all the divisions and that the passage of a city ordinance or state law licensing automobile repair firms will be sought.

Plans Radio Show

COLUMBUS, O., July 12.—The third annual radio show and exposition, under the auspices of the Columbus Radio Trades Association in conjunction with the Columbus Radio League will be held at Memorial Hall, Sept. 28 to Oct. 1, inclusive. The exposition will be the largest in the history of Columbus as all of the jobbers and most of the factories have signified their willingness to co-operate. George H. Bricker has been named general manager of the show. The former shows given under the auspices of the Columbus Radio Trades Association have been very successful. Exhibitors are reserving space for the show, which shows the great interest aroused. Officers of the Columbus Radio Trades Association are: F. W. Dickinson, president; R. M. Saunders, secretary and James H. Gooley, treasurer.

Hold Golf Tourney

CLEVELAND, July 12.—The Cleveland Automobile Manufacturers' and dealers' Association is conducting golf tournament during the summer months, in connection with automobile associations of a similar nature in Akron, Canton, Youngstown and Toledo.

Officers of the golf tournament are D. W. Thornton, Akron, president; O. C. Tyner, Cleveland, vice-president; Clifford Bolander, Canton, secretary and treasurer. O. C. Tyner, Jordan distributor, is captain of the Cleveland team. The Cleveland and Canton teams stand undefeated to date.

The last golf game of the tournament will be played in the form of a handicap at Canton September 15. A baseball league also has been formed by the manufacturers and dealers, the finale to be played at the association's annual picnic August 3.

Cleveland Plans Picnic

CLEVELAND, July 12.—The fifth annual picnic of the Cleveland Automobile Manufacturers' and Dealers' Association will be held August 3 at Geauga Lake Park, south of the city. The baseball and golf tournament will be in progress during the outing. More than 500 attended last year's picnic including automotive manufacturers, dealers, factory representatives, sales managers, salesmen, garage and service managers, accessory firms representatives and men from financial houses. W. A. Hall, of the Paige-Ohio Company, is general chairman.

Tells License Procedure

DETROIT, July 12.—Changing the name of used Ajax cars over to the "Nash Light Six" present a unique problem under the Michigan certificate of title law, according to bulletins sent out by the Michigan Automotive Trade Association, to members.

"If dealers having Ajax used cars in stock will take the title and transfer it into their own name and forward transfer to Lansing with a fee of $1, the Department of State will issue a new title showing the car as a 'Nash Light Six,'" reads the bulletin. "Then upon presentation of this title, when received from Lansing, to any Nash dealer, the member will be able to purchase Nash hub caps and change the identity of the car.

"Nash dealers have been advised by the factory as to how to proceed in changing over their Ajax owners to Nash owners but the Department of State has asked us to caution dealers not to change the hub caps until such time as the title has been properly transferred and the Ajax legally entitled to identification as a Nash.

"If our members are not careful to have this change made at this time, they are placing themselves liable to trouble the first of the year when the Ajax owners demand license plates for Nash cars and if the change has not been effected, our members must realize that the customer will not blame the State for their inability to get these Nash plates, but will place all the blame on the dealer and his organization selling the car."

N. S. P. A. Details Completed

DETROIT, July 12.—Details of the annual convention and show of the National Standard Parts Association have been completed, it is announced by E. P. Chalfant, executive vice-president of the association. The place will be the Hotel Sherman, Chicago, and the dates, November 15 to 19.

Exhibitors at the show will be manufacturing members of the association. Admission will be to all manufacturers and jobbers and their associates and employes. Show periods also will be open to jobber guests whose names are on a special list compiled from recommendations of members and approved by the show committee. Manufacturer guests may attend only the "open day," November 16, and admission will be on guest cards only. Jobber members will be requested not to discuss business relations with manufacturer guests and vice-versa. Representatives of the trade press will be admitted to all show periods.

At the convention, admission will be only to N. S. P. A. delegates and alternates except on the afternoon of Nov. 17 when noted speakers will be heard on subjects of national importance.

The annual banquet will be held the evening of Nov. 16 and will be attended only by men. Dinner and vaudeville with no speeches will feature this session. Special events will be arranged for the ladies during this period.

Show space will be about double what it was for the 1925 show. The exhibition hall and the grand ball room will be thrown together.

BRISBIN HEADS A. S. & M. M. A.

New President Also Is Director in Automotive Equipment Association

COLUMBUS, July 12.—At the recent convention of the American Supply & Machinery Manufacturers' Association, one of the largest associations of its kind in the United States, Don S. Brisbin was elected president for the ensuing year.

Mr. Brisbin is manager of sales for the Columbus McKinnon Chain Company, makers of Dreadnaught tire chains. He is a director of the Automotive Equipment Association and is widely known to the automotive and hardware fields through his constructive work in both industries and his authoritative addresses before various national conventions and assemblies.

Credit Men Organize

PORTLAND, Ore., July 12.—The credit men of the automobile dealers and finance companies here have formed an organization to be known as the Automotive Group of the Associated Retail Credit Men of Portland.

They propose to hold monthly meetings and bring their members into closer relationship for the purpose of interchanging ideas and rendering mutual assistance.

Ed Williams of the Williams Motor Car Company was elected president; W. H. Curtis, Condit Motor Car Co., vice-president; Miss S. C. Fery, May Motor Car Co., secretary, and D. K. Baker, Talbot & Casey, J. A. Lang, Union Motor Car Company, George O. Muhle, A. B. Smith Motor Company, and J. M. Walter and John N. Keeler, Credit Reporting Company, directors.

Buffalo Honors Baker

BUFFALO, N. Y., July 12.—Edward H. Baker was guest of honor at a testimonial dinner given in the Hotel Statler by 50 members of the Buffalo Automobile Dealers' Association. As a token of esteem for his untiring efforts in behalf of the advancement of the organization, he was presented with a watch. Fifteen years ago Mr. Baker entered the automobile business as a Cole dealer. Ten years later he became associated with the Chrysler interests. Mr. Baker has been a director of the automobile dealers' association for 10 years. He served as president two terms, preceding the present administration of C. E. Bull.

Buckman Plans Meeting

CLEVELAND, July 12.—Herbert Buckman, manager of the Cleveland Automobile Manufacturers' and Dealers' Association has been appointed chairman of the meeting of Cleveland jobbers of the A. E. A. to be held in the Winton Hotel on the evening of July 23. Buckman will send out a circular calling the attention of all dealers and distributors to the meeting, which is being called to secure the co-operation of all Clevelanders connected with the automotive industry in a merchandising drive. The meeting will be addressed by M. D. Graham, of the A. E. A. of Chicago and A. V. Comings, editor of the Automobile Trade Journal. E. R. Seager, of the Pennsylvania Rubber and Supply Company is chairman of the Cleveland group.

Commercial Credit Co. Purchases M. & A. Corp.

Exchange of Securities Aggregating $2,000,000 Is Involved in Sale

BALTIMORE, July 12.—Negotiations have been closed providing for the sale of the Mortgage and Acceptance Corporation to the Commercial Credit Company. It has been rumored for some time that these negotiaaions were under way but they have just reached the point where announcement could be made.

In a statement issued by the Mortgage and Acceptance Corporation it is set forth that for several months the company has been operating at a loss and it became evident to the board of directors that unless additional capital could be secured the business must be liquidated. The board of directors ratified the terms of the sale, the same action having been taken previously by the Commercial Credit Company. An exchange of securities with a market value of approximately $2,000,000 is involved.

The agreement provides that for every seven shares of Mortgage and Acceptance Corporation first preferred stock the Commercial Credit Company will give two shares of its 6½ per cent first preferred stock and three shares of common stock. The stockholders of the Mortgage and Acceptance Corporation who elect to accept the proposal must have deposited their certificates with the Commercial Credit Company by July 10.

The board of directors of the Mortgage and Acceptance Corporation said that in its opinion it is not possible in view of the present market for securities of finance companies to secure new capital; liquidation of the company with a constantly decreasing volume of business to be handled and the necessity nevertheless for the maintenance of a very complete organization, it is felt will be very expensive; moreover, unless such liquidation is carried on through the courts, there would be a great danger that the company's lines of credit could not be maintained.

Mathis Shows New Car

PARIS, June 23.—(By Mail)—Uniting 200 dealers at his Strasbourg factory, Mathis yesterday introduced his new model 8 h.p. car with the pomp usually associated with the launching of a ship. Placed on a raised, flower-bedecked platform, Madame Mathis poured a bottle of champagne into the radiator of the new car and cut the tricolor ribbons thus sending it down the inclined path among the waiting dealers. The new model has a wheelbase of 104 inches, a track of 46 inches and a four cylinder engine of 60 by 105 mm. (2.36 by 4.1 ins.) giving a piston displacement of 73 cubic inches. A two-bearing crankshaft of 1.85 inches diameter is used and one of the features of the engine is the placing of the timing gears at the flywheel end. Four speeds are fitted, the car has Perrot front wheel brakes and with fabric leather five-passenger sedan body weighs 1760 pounds.

Smith Joins Kant-Grab

NASHVILLE, Tenn., July 12.—Kant-Grab Manufacturing Company, manufacturers of Kant-Grab self-lubricating transmission lining for Fords, announces the appointment of M. O. Smith as sales manager. Mr. Smith has had wide experience in the marketing of Ford specialties.

Full Effect of Rubber "Buying Strike" Felt

WASHINGTON, July 12.—Full fruition of the eight months economic warfare by the American government against the British rubber monoply is now being enjoyed by the rubber users of this country, in the opinion of the U. S. Department of Commerce, in a statement this week summarizing the results.

"Great Britain simply succeeded in transferring its important rubber trade to the Dutch," the statement declares. "The British rubber monopoly has resulted in a decrease of approximately 20 per cent in the amount of crude rubber produced on British soil. In 1922, 75 per cent of the world's rubber was of British origin; now it is 50 per cent—attributable directly to the British rubber gouge."

Announcement is also made by the department that the President of Bolivia has issued a supreme decree exempting owners of rubber forests who pay the special tax of one-half centavos per hectare on rubber land. This is done, it is explained, to encourage the development of Bolivian rubber forests and to take advantage of the American market.

Plans Paris Flight

NEW YORK, July 12.—Lieut. Commander Noel Davis, a naval reserve officer who has been on active duty in the design division of the Naval Bureau of Aeronautics, plans to compete for the $25,000 prize offered by Raymond Orteig for a non-stop flight from New York to Paris. He has purchased the Wright-engined Fokker monoplane, Detroiter, which Capt. George H. Wilkins of the Detroit Arctic Expedition used on his unsuccessful attempt to reach the North Pole by air, and expects to start some time in July before the Sikorsky biplane being made ready for Capt. Rene Fonck's New York-Paris flight is completed.

Georgia Titles Gain

ATLANTA, July 12.—An excellent idea of the healthy condition of the automobile business in Georgia this year may be noted from the fact that automobile license sales in the state for the first six months of 1926 were larger than sales for the whole of 1925, establishing, in fact, the largest six month period in the history of the motor vehicle department. Receipts were nearly $500,000 larger than the first six months of 1925. Number of passenger cars registered exceeded 200,000 for the first time in the state's history for the first six months, the total being 208,502, compared with 182,594 for the same period in 1925.

New Republic Branch

PORTLAND Ore., July 12.—Purchase of the Republic Truck Sales company of this city by the factory and establishment of a factory branch was announced by J. C. Haggart, Jr., factory vice-president who made a trip here to negotiate the deal. Haggart was accompanied by Maurice Rothchild, chairman of the factorp board of directors, and R. S. Spencer, West Coast manager.

Coming Motor Events

Automobile Shows

1927 NATIONAL SHOWS
New York.....Jan. 8-15
Chicago.....Jan. 29-Feb. 5

Boston, Mass.....March 5-12
Mechanics Bldg.

Chicago.....Nov. 8-13
Show and convention, Automotive Equipment Ass'n, Coliseum.

Chicago.....Nov. 15-19
Show and convention of the National Standard Parts Ass'n, Hotel Sherman.

Dallas Tex.....Oct. 9-24
Automobile Bldg.

Denver, Colo.....Aug. 3-6
Automobile Show, Civic Center.

Fargo, N. Dak.....July 12-17
State Fair, State Fair Grounds.

New York.....Sept. 13-18
Madison Square Garden, Radio Manufacturers Ass'n.

St. Louis.....Sept. 4-19
Industrial Exposition, Forest Park.

Races

Altoona, Pennsylvania.....Sept. 6
Atlantic City, N. J.....July 17
Atlantic City, N. J.....Sept. 25
Charlotte, N. C.....Aug. 23
Dallas, Texas.....Nov. 11
Los Angeles, Cal.....Nov. 25
Salem, New Hampshire.....Oct. 12

Conventions

Automotive Equipment Assciation, Coliseum, Chicago.....Nov. 8-13

National Association of Automobile Show & Association Managers, Drake Hotel, Chicago.....July 27-28

National Standard Parts Association, Hotel Sherman, Chicago.....Nov. 15-19

National Tire Dealers Association, Inc., Memphis, Tenn.....Nov. 16-18

North Carolina Automotive Trade Association, Wrightsville Beach, N. C. .....Aug. 9-10

Society of Automotive Engineers, Transportation and Service Meeting, Boston, Mass.....Nov. 16-18

COMING FEATURE ISSUE OF CHILTON CLASS JOURNAL PUBLICATIONS
September 30—Automotive Industries—Annual Production Issue

Prices and Weights of Current Passenger Car Models

SHIP WT.	PASS.	BODY STYLE.	PRICE
AUBURN "4-44"			
.....	5-p	Touring	$1,145
.....	5-p	Roadster	1,145
.....	.....	Coupe	1,175
.....	5-p	Sedan	1,195
		"6-66"	
2850	4-p	Sport-Roadster	1,395
2860	6-p	Touring	1,395
.....	3-p	Coupe	1,445
3020	5-p	Brougham	1,495
3070	5-p	Sedan	1,695
3070	.....	Wanderer	1,745
		"8-88"	
		(129 in. W. B.)	
3180	4-p	Sport-Roadster	1,695
3200	6-p	Touring	1,695
.....	3-p	Coupe	1,745
3380	5-p	Brougham	1,795
3450	5-p	Sedan	1,995
3450	.....	Wanderer	2,045
		(146 in. W. B.)	
.....	7-p	Sedan	2,495
BUICK		**Standard "6"**	
2845	2-p	Roadster	$1,125
2955	5-p	Touring	1,150
3020	2-p	Coupe	1,195
3150	5-p	2 d. Sedan	1,195
3110	4-p	Coupe	1,275
3230	5-p	4 d. Sedan	1,295
		"Master"	
		(120 in. W. B.)	
3350	2-p	Roadster	1,250
3515	5-p	Touring	1,295
3670	5-p	2 d. Sedan	1,395
3765	5-p	Sedan	1,495
		(128 in. W. B.)	
3570	4-p	Sp. Roadster	1,495
3635	5-p	Sp. Touring	1,525
3805	3-p	Country Club	1,765
3855	4-p	Coupe	1,795
3940	5-p	Brough. Sedan	1,925
4025	7-p	Sedan	1,995
CADILLAC			
		"314" Standard Line	
		(132 in. W. B.)	
4110	5-p	Brougham	$2,995
4125	4-p	Victoria	3,095
4040	2-p	Coupe	3,045
4210	5-p	Sedan	3,195
4315	7-p	Sedan	3,295
4380	7-p	Imperial	3,435
		Custom Built	
		(132 in.)	
4065	2-p	Roadster	$3,250
		(138 in. W. B.)	
4125	7-p	Touring	3,250
4100	5-p	Phaeton	3,250
4300	5-p	Coupe	4,000
4300	5-p	Sedan	4,150
4400	7-p	Suburban	4,285
4450	7-p	Imperial	4,485
CASE			
		J. I. C.	
3260	3-p	Roadster	$1,840
3290	5-p	Touring	1,885
3470	5-p	Sp. Touring	2,160
3640	5-p	Sedan	2,590
3650	5-p	Brougham	2,590
		"Y"	
3950	7-p	Touring	2,225
4320	7-p	Sedan	2,975
CHANDLER "35"			
3090	2-p	Roadster	$1,695
3085	5-p	Sport Touring	1,545
3223	7-p	Touring	1,645
3498	5-p	20th C'y Sedan	1,590
3309	5-p	Brougham	1,695
3525	5-p	Met. Sedan	1,895
3594	7-p	Sedan	1,995
3594	7-p	Berline	2,095
CHEVROLET "X"			
1780	2-p	Roadster	$510
1875	5-p	Touring	510
2030	2-p	Utility Coupe	645
2130	5-p	Coach	645
2215	5-p	Sedan	735
2215	5-p	Landau Sedan	765
CHRYSLER "58"			
2265	2-p	Roadster	$890
2300	5-p	Touring	845
2405	2-p	Club Coupe	895
2510	5-p	Coach	935
2570	5-p	Std. Sedan	995
		"60"	
2575	5-p	Touring	$1,075
2545	2-p	Roadster	1,145
.....	2-p	Coupe	1,165
2780	5-p	Coach	1,195
2840	5-p	Sedan	1,295
		"70"	
2805	4-p	Roadster	$1,525
2785	5-p	Phaeton	1,395
2895	5-p	Coach	1,395

SHIP WT.	PASS.	BODY STYLE.	PRICE
CHRYSLER (Continued)			
3060	5-p	Sedan	1,545
2935	4-p	Royal Coupe	1,695
2995	5-p	Brougham	1,745
3085	5-p	Royal Sedan	1,795
3090	5-p	Crown Sedan	1,895
		"80"	
		(185½ in.*)	
3775	5-p	Phaeton	2,545
3730	2-4-p	Roadster	2,595
4105	5-p	Sedan	3,095
		(192½ in.*)	
4015	4-p	Coupe	2,895
		(198½ in.*)	
4225	7-p	Sedan	3,195
4260	7-p	Sedan Lim.	3,595
*Overall length.			
CLEVELAND "31"			
2415	5-p	Touring	$945
2565	5-p	Tour'g DeLuxe	1,025
2520	3-p	Coupe	1,035
2695	5-p	Sedan	1,090
		"43"	
2800	5-p	Touring	1,145
2975	5-p	Sp. Touring	1,295
2915	3-p	Coupe	1,225
3145	5-p	Sedan	1,345
CUNNINGHAM			
		"V-6"	
4500	4-p	Sp. Touring	$6,150
4600	7-p	Touring	6,650
4700	4-p	Coupe	7,600
5000	6-p	Limousine	8,100
DAGMAR			
		"6-70"	
3750	4-p	Roadster	$3,500
3800	4-p	Sp. Tourer	3,500
3700	4-p	Phaeton	3,500
4200	4-p	Petite Coupe	4,500
4200	4-p	Petite Sedan	4,500
4500	4-p	De Luxe Coupe	4,750
4700	5-p	Sedan	4,700
4800	7-p	Sedan	4,750
		"6-60"	
3150	5-p	Touring	1,785
3100	2-p	Roadster	1,985
3200	4-p	Sp. Touring	1,985
3500	5-p	Sedan	2,445
DAVIS			
		"92-27"	
2915	5-p	Legion. Tour.	1,495
3000	5-p	Sedan	1,595
3060	5-p	Imperial Sedan	1,795
		"93-27"	
2325	5-p	Touring	$1,285
2500	5-p	Sedan	1,285
2450	3-p	Coupe	1,285
DIANA "St. 8"			
2995	5-p	Roadster	$1,795
2995	5-p	Palm Beach Roadster	1,995
3170	5-p	DeL Brougham	1,995
3275	5-p	De Luxe Sedan	2,195
3160	5-p	Cabriolet	2,095
3640	7-p	Sedan (135 in W. B.)	2,695
3640	7-p	Berline Sedan	2,895
.....	5-p	Town Car.	
DODGE BROTHERS			
2448	2-p	Roadster	$ 795
2538	2-p	Special Roadster	845
2567	5-p	Touring	795
2642	5-p	Spec. Touring	845
2497	2-p	Sport Roadster	880
2617	4-p	Sport Touring	880
2589	2-p	Coupe	845
2632	2-p	Spec. Coupe	895
2811	5-p	Sedan	895
2883	5-p	Spec. Sed.	945
2920	5-p	DeL. Sedan	1,075
DUESENBERG			
		Straight "8"	
3920	2-p	Roadster	†
3970	4-p	Roadster	†
3700	5-p	Phaeton	$6,650
3980	4-p	Sp. Phaeton	†
4115	5-p	Sedan	†
4500	7-p	Sedan	†

†Manufacturers do not quote list prices.

SHIP WT.	PASS.	BODY STYLE.	PRICE
DU PONT		**"D"**	
3300	2-p	Roadster	$2,600
3550	5-p	Touring	2,600
3800	7-p	Touring	2,750
3550	5-p	Touring Sedan	3,400
DURANT			
		A-22	
2300	5-p	Touring	$ 730
2380	5-p	Spec. Touring	805
2450	4-p	Coupe	825
2480	4-p	Spec. Coupe	875
2650	5-p	Sedan	880
2710	5-p	Spec. Sedan	995
ELCAR			
		"4-55"	
2560	5-p	Touring	$1,095
.....	4-p	Roadster	1,295
2900	5-p	Coach	1,195
.....	3-p	Coupe	1,295
2779	5-p	Sedan	1,395
		"6-65"	
.....	5-p	Touring	1,295
.....	4-p	Roadster	1,495
2779	5-p	Coach	1,395
.....	3-p	Coupe	1,495
2900	5-p	Sedan	1,595
		"8-81"	
.....	4-p	Roadster	2,315
.....	7-p	Touring	2,265
3000	3-p	Coupe	2,195
.....	4-p	Coupe	2,095
.....	5-p	Sedan	2,265
4050	7-p	Sedan	2,765
ESSEX			
2290	5-p	Touring	.....
2455	5-p	Coach	735
FLINT			
		"Z-18"	
2497	5-p	Coach	1,085
2500	5-p	DeL. Coach	1,185
		"B-60"	
2683	4-p	Roadster	1,395
2708	5-p	Touring	1,285
.....	4-p	Coupe Roadster	1,495
3093	5-p	Sedan 4d.	1,525
2933	5-p	Brougham	1,525
		"E-80"	
		(120 in. W. B.)	
3139	4-p	Sport Road.	$1,945
3189	5-p	Touring	1,595
3310	4-p	Sp. Touring	1,945
3414	4-p	Coupe	2,045
3529	5-p	Sedan	2,195
		(130 in. W. B.)	
3294	7-p	Touring	.....
3649	7-p	Sedan	2,395
FORD			
		With Starter, Dem. Rims and Balloon Tires	
1655	2-p	Runabout	$360
1738	5-p	Touring	380
1860	2-p	Coupe	485
1972	5-p	Tudor Sedan	495
2004	5-p	Fordor Sedan	545
FRANKLIN			
		"11"	
2800	3-p	Sport Road.	$2,690
2845	5-p	Touring	2,635
2965	3-p	Coupe	2,645
.....	3-5-p	Coupe	2,760
3175	5-p	Sedan	2,790
.....	4-p	Victoria	2,790
.....	5-7-p	Sedan	2,840
.....	5-p	Oxford Sedan	2,865
3080	5-p	Sport Sedan	2,910
3275	7-p	Limousine	2,990
3135	7-p	Cabriolet	4,400
GARDNER			
		6B	
3070	4-p	Phaeton	$1,395
3030	4-p	Roadster	1,395
3290	5-p	Brougham	1,545
3210	4-p	Cabriolet	1,695
3280	5-p	Imp. Sedan	1,695
		8B	
3350	4-p	Phaeton	1,795
3350	4-p	Sp. Roadster	1,795
3620	5-p	Brougham	1,895
3480	4-p	Cabriolet	2,095
3620	5-p	Imp. Sedan	2,095
3940	7-p	Sedan	2,795
GRAY			
		"S"	
1755	5-p	Touring	$595
2055	5-p	Sedan	$845
HERTZ			
		"D-1"	
.....	5-p	Touring	.....
3800	5-p	Sedan	.....
HUDSON			
		"Super Six"	
3365	7-p	Phaeton	.....
3405	5-p	Coach	1,095
3495	4-p	Brougham 4d.	1,395
3645	7-p	Sedan	1,550
HUPMOBILE			
		"A"	
2620	5-p	Touring	$1,325
2800	5-p	Sedan	1,385
2800	4-p	Coupe	1,385
		"E-2"	
3255	5-p	Touring	1,945
3362	7-p	Touring	2,045
.....	2-4-p	Roadster	2,045
3465	4-p	Coupe	2,345
3500	5-p	Sedan	2,345
3580	5-p	Berline	2,445

SHIP WT.	PASS.	BODY STYLE.	PRICE
JEWETT			
		"New-Day"	
2400	5-p	Touring DeL.	$1,095
2475	5-p	Sedan	995
2575	5-p	Sedan De Luxe	1,095
JORDAN			
		"J"	
2915	4-p	Playboy Road.	$1,845
3200	5-p	Sedan	1,945
.....	4-p	Victoria	1,945
		Series "A"	
3340	5-p	Touring	2,275
3525	5-p	Sedan	2,495
3625	4-p	Victoria	2,495
KISSEL			
		"55"	
3130	2-p	Speedster	$1,795
.....	2-p	Sp'dster DeL.	2,085
.....	4-p	Speedster	1,895
.....	4-p	Sp'dster DeL.	2,185
3530	2-p	Enc. Speedster	2,085
.....	2-p	Enc. Spd. DeL.	2,585
.....	4-p	Enc. Speedster	2,185
.....	4-p	Enc. Spd. DeL.	2,685
3190	4-p	Tourster	1,795
.....	4-p	Tourster DeL.	1,985
2980	5-p	Phaeton	1,585
3170	5-p	Phaeton DeL.	1,785
.....	7-p	Touring	1,685
.....	7-p	Touring DeL.	1,885
.....	.....	Coupe Roadster	1,695
3430	4-p	Coupe	2,085
.....	4-p	Coupe DeL.	2,485
3540	5-p	Broug. Sedan	1,995
.....	5-p	Brg. Sed. DeL.	2,485
.....	5-p	Brougham 2d.	1,695
4070	7-p	Sedan De Luxe	3,085
4010	7-p	Ber. Sed. DeL.	3,185
3530	5-p	Victoria	2,185
.....	5-p	Victoria DeL.	2,485
		"75"	
.....	2-p	Speedster	2,195
.....	2-p	Speedster DeL.	2,485
.....	4-p	Speedster	2,295
.....	4-p	Speedster DeL.	2,585
.....	2-p	Enc. Speedster	2,485
.....	2-p	Enc. Spd. DeL.	2,985
.....	4-p	Enc. Speedster	2,585
.....	4-p	Enc. Spd. DeL.	3,085
.....	4-p	Tourster	2,195
.....	4-p	Tourster DeL.	2,385
.....	5-p	Phaeton	1,985
.....	5-p	Phaeton DeL.	2,185
.....	7-p	Touring	2,085
.....	7-p	Touring DeL.	2,285
.....	.....	Coupe Roadster	2,095
.....	4-p	Coupe	2,485
.....	4-p	Coupe De Luxe	2,885
.....	5-p	Broug. Sedan	2,395
.....	5-p	Brg. Sed. DeL.	2,985
.....	5-p	Brougham 2d.	2,095
.....	7-p	Sedan De Luxe	3,485
.....	7-p	Berl. Sed. DeL.	3,585
.....	7-p	Victoria	2,585
.....	7-p	Victoria DeL.	2,885
LEXINGTON			
		"6-50"	
2950	3-p	Roadster	$1,895
2950	5-p	Touring	1,895
3425	5-p	Sedan	2,245
3425	5-p	Landau Sedan	2,245
3400	5-p	Laudaulet on	appl.
LINCOLN			
4460	2-p	Roadster	$4,000
4580	7-p	Touring	4,000
4565	4-p	Phaeton	4,000
4780	4-p	Sport Phaeton	4,900
4750	4-p	Coupe	4,600
4885	4-p	Sedan	4,800
4760	5-p	Sedan	4,900
4890	7-p	Sedan	5,100
4945	7-p	Limousine	5,300
LOCOMOBILE			
		"Jr.-8"	
3100	2-p	Roadster	2,150
3000	5-p	Touring	1,785
3250	4-p	Coupe	2,265
3400	5-p	Sedan	2,285
3350	5-p	Brougham	2,285
		"90"	
4660	4-p	Sportif Tour.	5,500
4600	4-p	Roadster	5,900
4980	4-p	Coupe	6,950
5040	5-p	Victoria Sedan	7,300
.....	5-p	Sed. (divided)	7,450
5000	7-p	Cabriolet	7,500
5105	7-p	Suburban	7,500
4960	6-p	Brougham	7,500
		"48"	
5280	4-p	Sportif Tour.	$7,460
5330	7-p	Touring	7,460
5640	7-p	Touring Lim.	9,500
5630	5-p	Victoria Sedan	10,050
5464	7-p	Brougham	10,040
5868	7-p	Enc. Dr. Lim.	10,050
5600	7-p	Cabriolet	10,300

Prices and Weights of Current Passenger Car Models

SHIP WT.	PASS.	BODY STYLE.	PRICE
McFARLAN "6"			
		"SV"	
3700	2-p	Roadster	$2,650
.....	2-p	Spec. Roadster	2,900
3600	5-p	Touring	2,650
.....	7-p	Touring	2,750
.....	5-p	Brougham 4d.	$3,180
3850	4-p	Coupe	3,180
3850	5-p	Sedan	3,180
.....	5-p	Spec. Sedan	3,180
3850	7-p	Sedan	3,280
.....	5-p	Sub. Sedan	3,380
.....	7-p	Sub. Sedan	3,480
		"TV"	
4000	2-p	Roadster	$5,400
4600	4-p	Sp. Touring	5,600
4900	4-p	Coupe	6,720
5200	4-p	Tour. Sedan	6,720
5200	7-p	Tour. Sedan	6,810
.....	6-p	Sedan	6,720
.....	7-p	Sedan	6,810
.....	7-p	Spec. Sedan	6,810
.....	7-p	Enc. Sedan	7,110
.....	7-p	Sub. Sedan	7,110
5200	7-p	Town Car	9,000
		"Straight 8"	
.....	2-p	Roadster	$2,650
.....	4-p	Roadster	2,900
.....	5-p	Touring	2,650
.....	7-p	Touring	2,750
.....	5-p	Sedan	3,180
.....	5-p	Sub. Sedan	3,380
.....	7-p	Sedan	3,280
.....	7-p	Sub. Sedan	3,480
.....	4-p	Coupe	3,180
.....	5-p	Coach Broug.	3,180
.....	5-p	Town Car	4,600
MARMON			
		"74"	
.....	4-p	Speedster	$3,295
3827	2-p	Speedster	3,295
3604	5-p	Phaeton	3,295
3704	7-p	Touring	3,295
4080	5-p	Std. Brougham	3,295
3983	2-p	Std. Coupe	3,295
3937	4-p	Victoria	3,295
4065	5-p	Sedan	3,295
4243	7-p	Sedan	3,370
4080	5-p	Spec. Broug.	3,395
4065	5-p	Spec. Sedan	3,395
4243	7-p	Spec. Sedan	3,470
4031	5-p	Sedan De Luxe	3,775
4175	7-p	Sedan de Luxe	3,850
4100	5-p	Sedan Lim.	3,900
4215	7-p	Sedan Lim.	3,975
MOON			
		Series "A"	
2600	5-p	Roadster	$1,395
.....	5-p	Roadster	.....
2560	5-p	Touring	1,195
2720	5-p	Cab. Roadster	1,595
2710	5-p	DeL Brougham	1,395
2860	5-p	DeL. Sedan 4d.	1,545
		London	
3270	5-p	Sp. Touring	$1,985
3290	7-p	Touring	1,985
3590	5-p	Petite Sedan	2,540
NASH			
		"Light Six"	
2210	5-p	Touring	$865
2410	5-p	Sedan	995
		"Special"	
2870	2-p	Roadster	$1,115
2960	5-p	Touring	1,135
2980	4-p	Roadster	1,225
3030	2-p	Business Coupe	1,165
3120	5-p	Sedan 2d.	1,215
3170	5-p	Sedan	1,315
3270	5-p	Sedan 4d	1,445
		"Advanced"	
		(121 in. W. B.)	
3390	4-p	Roadster	$1,475
3400	5-p	Touring	1,340
3550	5-p	Sedan 2d.	1,425
		"Advanced"	
		(127 in. W. B.)	
3480	7-p	Touring	$1,490
3640	4-p	Victoria	1,790
3750	5-p	Coupe 4d.	1,990
3830	7-p	Sedan	2,090
OAKLAND			
		"6"	
2600	4-p	Sp. Roadster	1,175
2500	5-p	Phaeton	1,025
2640	5-p	2d. Sedan	1,095
2615	3-p	Landau Coupe	1,125
2765	5-p	4d. Sedan	1,195
2885	5-p	Landau Sedan	1,295
OLDSMOBILE			
		"30"	
2235	5-p	Touring	$875
.....	4-p	DeL. Roadster	975
2445	5-p	DeL. Touring	980
.....	2-p	Coupe	925
2460	5-p	Coach	950
.....	2-p	De Luxe Coupe	990
2660	5-p	De Luxe Coach	1,040
2535	5-p	Sedan	1,025
2735	5-p	De Luxe Sedan	1,115

SHIP WT.	PASS.	BODY STYLE.	PRICE
OVERLAND			
		"96" 4	
.....	.....	Touring	$645
.....	2-p	Coupe	735
2075	5-p	Sedan	735
		"91" 4	
1919	5-p	Touring	$495
2202	5-p	Std. Sedan 2d	595
		"93" 6	
2395	5-p	Touring	$895
2397	2-p	Coupe	895
2443	4-p	Std. Sedan	935
PACKARD			
		"6"	
		(126 in. W. B.)	
3643	4-p	Roadster	$2,785
3653	5-p	Phaeton	2,585
3753	4-p	Coupe	2,585
3937	5-p	Sedan	2,585
		(133 in. W. B.)	
3793	7-p	Touring	$2,785
4043	7-p	Sedan	2,785
.....	5-p	Club Sedan	2,725
4133	7-p	Sedan Lim.	2,885
		"8"	
		(136 in. W. B.)	
4060	4-p	Runabout	$3,950
4090	5-p	Phaeton	3,750
4242	4-p	Coupe	4,650
4528	5-p	Sedan	4,750
		(143 in. W. B.)	
4199	7-p	Touring	$3,950
.....	5-p	Club Sedan	4,890
4655	7-p	Sedan	5,000
4710	7-p	Sedan Lim.	5,100
PAIGE			
		"6-72"	
		(125 in W. B.)	
3500	5-p	Std. Sedan	$1,495
3615	5-p	Sedan De Luxe	1,670
3475	4-p	Cab Roadster	2,295
3740	7-p	Sedan DeLuxe	1,995
3825	7-p	Limousine	2,245
		(115 in. W. B.)	
3055	5-p	Brougham	$1,295
PEERLESS			
		"6-72"	
		((126½ in. W. B.)	
3175	5-p	Touring	$1,895
3425	5-p	Coupe	2,295
3500	5-p	Sedan	2,395
		(133½ in. W. B.)	
3275	2-p	Sp. Roadster	$2,195
3300	7-p	Sp. Touring	1,995
3700	7-p	Sedan	2,595
3825	7-p	Limousine	2,695
3575	5-p	De Luxe Sedan	2,795
3650	7-p	De Luxe Sedan	2,995
		"6-80"	
2800	5-p	Phaeton	$1,395
2895	5-p	Roadster	1,495
.....	.....	Coupe Roadster	1,565
2950	5-p	Sedan	1,495
3140	5-p	Std. Sedan	1,595
.....	.....	Sport Sedan	1,795
3140	5-p	De Luxe Sedan	1,795
		"8-69"	
3675	.....	Roadster	$2,995
3950	5-p	Sedan	3,495
4025	7-p	Sedan	3,595
4100	7-p	Ber. Limousine	3,795
PIERCE-ARROW			
		"80"	
3245	2-p	Runabout	$2,895
3300	4-p	Phaeton	3,095
3425	7-p	Phaeton	2,895
3470	5-p	Coach 2d.	2,995
3525	5-p	Coach 4d.	3,250
3620	7-p	Coach	3,350
3375	4-p	Coupe	3,695
3480	5-p	Sedan	3,895
3600	7-p	Sedan	3,995
3655	7-p	Enc. Dr. Lim.	4,045
3675	7-p	Lim. Coach	3,450
		"33"	
4350	2-p	Runabout	$5,250
4500	4-p	Touring	5,250
4590	7-p	Touring	5,250
4730	3-p	Coupe	6,800
4800	4-p	Sedan	6,900
4960	7-p	Sedan	7,000
4750	4-p	Coupe Sedan	6,900
4730	6-p	Brougham	6,800
4850	7-p	Limousine	7,000
5060	7-p	Enclosed Lim.	7,000
4780	7-p	French Lim	7,000
4730	6-p	Landaulet	7,000
PONTIAC			
2270	2-p	Coupe	$825
2335	5-p	Coach	825
REO			
		"T-6"	
3375	2-p	Roadster	$1,665
3182	5-p	Sp. Touring	1,395
3365	2-p	Coupe	1,495
3365	2-p	Spec. Coupe	1,565
3515	5-p	Sedan 4d.	1,565
3565	5-p	Spec. Sedan	1,745

SHIP WT.	PASS.	BODY STYLE.	PRICE
REVERE			
		"25"	
3900	2-p	Sp. Roadster	$2,750
3975	4-p	Speedster	2,750
4050	5-p	Touring	2,750
4300	5-p	Sedan	3,800
		"M"	
3700	2-p	Roadster	$3,200
3800	4-p	Sportster	3,200
3970	5-p	Touring	3,200
4400	5-p	Sedan	4,000
RICKENBACKER			
		"E"	
3038	5-p	Touring	$1,750
3068	7-p	Touring	1,795
2953	4-p	Roadster	1,795
3116	5-p	Coupe-Sedan	1,495
3202	5-p	Brougham	1,795
3092	4-p	Coupe Roadster	1,920
3040	4-p	Coupe De Luxe	1,995
3317	5-p	Sedan	1,995
3353	7-p	Sedan	2,195
		"B-8"	
3227	4-p	Roadster	$2,195
3315	5-p	Touring	2,150
3355	7-p	Touring	2,195
.....	4-p	Sup. Sp. Roadster	3,250
3445	5-p	Coupe Sedan	2,095
3486	5-p	Brougham	2,295
3345	4-p	Coupe Roadster	2,320
3440	4-p	Coupe DeLuxe	2,395
3603	5-p	Sedan	2,495
3640	7-p	Sedan	2,595
.....	4-p	Sup. Sp. Sedan	5,000
ROAMER			
		"6-50-55"	
.....	5-p	Spec. Tourer	$1,295
.....	5-p	Spec. Sp.Tourer	1,395
.....	2-p	Bus. Coupe	1,395
.....	5-p	Coupe	1,395
.....	5-p	Sedan DeLuxe	1,695
		"6-54-E"	
.....	4-p	Roadster	$2,385
.....	4-p	Tourer	1,985
.....	4-p	Sport	2,285
.....	7-p	Tourer	2,285
.....	3-p	Cabriolet	2,750
.....	5-p	Sedan	2,950
		"4-75-E"	
		"Custom Built"	
.....	2-p	Speedster	$3,485
.....	3-p	Sport	3,285
.....	4-p	Tourer	2,985
		"8-88" (138 in. W. B.)	
.....	4-p	Roadster	$2,750
.....	5-p	Sport	2,750
.....	5-p	Tourer	2,495
.....	7-p	Tourer	2,585
.....	2-p	Speedster	2,985
.....	5-p	Sedan	1,995
.....	3-p	Cabriolet	2,950
.....	5-p	Spec Sedan	3,485
.....	7-p	Sedan (136 in. W. B.)	3,285
.....	5-p	Brougham	2,895
		"8-80" (126 in. W. B.)	
2950	2-p	Roadster	$1,895
3150	2-p	Coupe	1,985
3580	5-p	Sedan	1,985
ROLLS-ROYCE			
Manufacturers do not quote list prices.			
STANLEY			
		"262"	
3600	5-p	Phaeton	$2,650
4000	5-p	Sedan	3,400
STAR			
		"4"	
1885	5-p	Touring	$540
1915	2-p	Coupster	610
1965	2-p	Coupe	675
2100	5-p	Coach	695
2257	5-p	Sedan 4d.	795
		Standard "6"	
2025	5-p	Touring	725
2160	2-4-p	Sp. Roadster	910
2045	2-p	Coupster	745
2100	2-p	Coupe	820
2245	5-p	Coach	880
2345	5-p	Landau Sedan	975
STEARNS-KNIGHT			
		"B-4"	
3475	4-p	Touring	$1,595
3475	5-p	Touring	1,595
3495	2-p	Sport Coupe	1,795
3650	4-p	Coupe	1,995
3725	5-p	Sedan	2,095
3725	5-p	Brougham	2,095
		"75"	
3610	4-p	Touring	$1,875
3590	5-p	Touring	1,875
3550	2-p	Sport Coupe	2,185
3875	4-p	Coupe	2,350
3775	5-p	Sedan	2,475
3780	5-p	Brougham	2,475

SHIP WT.	PASS.	BODY STYLE.	PRICE
STEARNS-KNIGHT (Continued)			
		"95"	
3770	2-p	Roadster	$2,750
3775	4-p	Touring	2,395
3735	5-p	Touring	$2,395
3895	7-p	Touring	2,495
4035	5-p	Sedan	2,750
4035	5-p	Brougham	2,750
4020	4-p	Coupe	2,850
4090	5-p	Sport Sedan	3,050
4200	7-p	Sedan	3,150
STUDEBAKER			
		Standard Six	
2700	3-p	Du. Roadster	$1,125
2765	3-p	Sport Roadster	1,295
2830	5-p	Du. Phaeton	1,145
2875	3-p	Country Club	1,295
2945	5-p	Coach	1,195
3115	5-p	Sedan	1,295
.....	5-p	Sedan	1,395
		Special Six	
3380	3-p	Du. Roadster	$1,395
3500	4-p	Sp. Roadster	1,595
3495	5-p	Du. Phaeton	1,445
3470	5-p	Coach	1,445
3685	4-p	Victoria	1,750
3620	5-p	Brougham	1,795
3875	5-p	Sedan	1,895
		Big Six	
		(120 in. W. B.)	
3270	3-p	Du. Roadster	$1,495
3400	4-p	Sport Roadster	1,645
3405	5-p	Sport Phaeton	1,575
3510	5-p	Club Coupe	1,650
3680	5-p	Sedan	1,895
		(127 in. W. B.)	
3630	7-p	Du. Phaeton	$1,775
3910	5-p	Brougham 4d.	2,095
3945	7-p	Sedan	2,145
4080	7-p	Berline	2,225
STUTZ			
		"A-A"	
4164	2-p	Speedster	$2,995
4175	4-p	Speedster	2,995
4390	5-p	Brougham	2,995
4416	5-p	Sedan	2,995
4273	4-p	Vic. Coupe	2,995
4286	2-p	Coupe	2,995
VELIE			
		"60"	
3030	4-p	Sp. Roadster	$1,495
3025	5-p	Club Phaeton	1,450
2908	3-p	Coupe	1,450
3175	5-p	Sedan	1,450
3340	5-p	Royal Sedan	1,785
3350	.....	De Luxe Sedan	2,150
WILLS SAINTE CLAIRE			
		"B-68"	
3500	7-p	Phaeton	$2,900
3520	5-p	Sedan	3,100
3635	7-p	Sedan	3,300
		"C-68"	
3350	4-p	Roadster	$2,900
3450	4-p	Gray G. Trav.	2,900
3600	5-p	Sedan	3,200
		"D-68"	
3550	4-p	Gray G. Trav.	$3,000
3450	4-p	Roadster	3,000
3625	4-p	Cab. Roadster	3,950
3800	5-p	Std. Sedan	3,450
3825	7-p	Sedan	3,550
3820	5-p	Brougham	4,050
3710	5-p	Spec. Sedan	3,450
3875	7-p	Enc. Limousine	3,650
		"W-6"	
3650	7-p	Phaeton	$2,600
3410	4-p	Roadster	2,600
3550	4-p	Gray G. Trav.	2,600
3680	5-p	Sedan	2,800
3765	5-p	Vogue Sedan	2,900
3775	7-p	Sedan	3,000
3835	7-p	Enc. Limousine	3,085
		"T-6" (127 in. W. B.)	
3675	5-p	Traveler	$2,700
3580	4-p	Roadster	2,700
3750	4-p	Cab. Roadster	3,650
3900	5-p	Sedan	3,150
4075	7-p	Sedan	3,250
4080	7-p	Limousine	3,350
3920	5-p	Brougham	3,750
3810	5-p	Spec. Sedan	3,150
WILLYS-KNIGHT			
		"66"	
3323	2-p	Roadster	$1,850
3395	5-p	Touring	1,750
3566	7-p	Touring	1,950
3582	5-p	Coupe Sedan	2,095
3604	4-p	Coupe	2,195
3686	5-p	Sedan	2,295
3822	7-p	Sedan	2,495
		"70"	
2846	5-p	Touring	$1,295
.....	2-p	Coupe	1,395
2853	5-p	Sedan	1,395
3050	5-p	Sedan	1,495

Mechanical Specifications of Current Passenger Car Models

This list comprises cars distributed on a national basis

MAKE AND MODEL	Wheel Base (Inches)	Tire Size Decimals-Balloons	ENGINE: Make and Model	Number of Cyls., Bore and Stroke	Rated H.P. N.A.C.C.	Piston Displacement	Valve Arrangement	Camshaft Drive	Piston Material	No. Main Bear.	Crankshaft Vib'n Dampener?	Oiling System	Oil Cleaner?	Cooling System	Thermostat?	Radiator Shutters?	Carburetor Make	Air Cleaner?	ELECTRICAL SYSTEM: Ignition System Make	Generator and Starter Make	Clutch—Type and Make	Gear Set—Make	Universals—Type and Make	REAR AXLE: Type and Make	Gear Ratio	BRAKES: Foot—Type and Location	Hand—Type and Location	4-Wheel Type—Optional	Steering Gear—Make	Rear Springs—Type and Length	Chassis Lubrication—Type and Make
Auburn 4-44	120	30x5.25	Lyc. CF	4-3⅝x5	21.0	206	L	He.	Al.	5	N	P	N	Th.	N	N	Zen.	N	Remy.	Remy.	P.B&B.	W-G.	m-U-P.	½ Sal.	5.10	E-F.	E-T	H	Ross.	S-56¾	Oc-Ju.
Auburn 6-66	121	30x5.25	Lyc. 4SM	6-3¼x4½	25.3	224	L	Ch.	C I.	4	N	P	N	Pu.	N	N	Sch.	N	Remy.	Remy.	P.Long.	W-G.	m-U-P.	½ Col.	5.10	B-F.	E-T	M	Ross.	S-57.	Pr-Dot
Auburn 8-88	129	30x5.77	Lyc. 4HM	8-3¼x4½	33.8	299	L	Ch.	C I.	5	N	P	N	Pu.	N	N	Sch.	N	Remy.	Remy.	P.Long.	W-G.	m-U-P.	½ Col.	5.10	B-F.	E-T	M	Ross.	S-57.	Pr-Dot
	146	32x6.20																												
Buick Standard	114⅜	31x5.25	Own. Std.	6-3½x4½	23.4	207	I	He.	C I.	4	N	P	F	Pu.	N	N	Mar.	Y	Delco.	Delco.	D.Own.	Own.	m-Own.	¾ Own.	4.90	E-F.	I-R.	M	Jac.	V-48.	Pr-Ze.
Buick Master	120–128	33x6.00	Own. Mast.	6-3½x4¾	29.4	274	I	He.	C I.	4	N	P	F	Pu.	N	N	Mar.	Y	Delco.	Delco.	D.Own.	Own.	m-Spi.	Fl Own.	Var.	B-F.	I-R.	M	Jac.	V-47⅝	Pr-Ze.
Cadillac 314	132–138	33x6.75	Own. 314	8-3½x5½	31.2	314	L	Ch.	C I.	3	N	PK.	F	Pu.	Y	Y	Own.	N	Delco.	Delco.	D.Own.	Own.	m-Spi.	Fl Own.	Var.	B-F.	I-R.	M	Jac.	S-60.	Pr-Al.
Case Y	132	34x7.30	Con. 6J	6-3⅜x5	33.7	331	L	He.	C I.	4	N	P	N	Pu.	Y	N	Sch.	N	Delco.	Delco.	D.Own.	Own.	f-Sne.	¾ Col.	4.45	E-F.	E-T	H	Ross.	S-57.	Pr-Sa.
Case JIC	122	32x6.20	Con. 8R	6-3⅜x4½	27.3	242	L	He.	C I.	4	N	P	N	Pu.	Y	N	Sch.	N	Delco.	Delco.	D.Own.	Own.	f-Sne.	½ Col.	4.90	E-F.	E-T	H	Ross.	S-54¾	Pr-Sa.
Chevrolet X	103	30x3½† 29x4.40	Own. Sup.	4-3 11/16x4	21.8	171	I	He.	C I.	3	....	P	S.	N	Pu.	N	....	Car.	N	Remy.	Remy.	P.Own.	Own.	m-Own.	¾ Own.	4.45	E-R	E-T	M*	Own.	S-59¼	Bowen
Chrysler "80"	185–198½‡	32x6.20	Own.	6-3½x5	29.4	288	L	Ch.	Spe.	7	Y	P	F.	Y	Pu.	Y	N	Str.	Y	Remy.	Remy.	P.Own.	Own.	m-U-P.	½ Own.	4.27	E-F.	E-T	H	Ross.	S-58.	Pr-Ze.
Chrysler "58"	156‡	30x5.25	Own. 25F	4-3⅝x4½	21.0	186	L	He.	Al.	3	N	P	C.	N	Th.	N	N	Ste.	N	Remy.	Remy.	P.Roc.	Own.	f-Own.	½ Own	4.60	E-R	E-T	H*	Gem.	S-53.	Pr-Ze.
Chrysler "60"	156‡	30x5.25	Own.	6-3x4¼	21.6	180	L	....	Spe.	7	Y	....	F	Pu.	....	N	.....	Y	.....	Remy.	P.	Own.	m-Own.	½ Own.	4.9 4.7	E-F.	E-T	H	Ross.	S-	Pr-Ze.
Chrysler "70"	162½‡	30x5.77	Own. G	6-3 1/16x4¾	23.4	218	L	Ch.	Al.	7	Y	P	C.	F	Pu.	Y	N	Bal.	Y	Remy.	Remy.	P.Roc.	Own.	m-U-P.	½ Own.	4.30	E-F.	E-T	H	Gem.	S-51⅞	Pr-Ze.
Cleveland 31	108½	30x4.75	Own. 31	6-3 x4¼	21.6	180	L	Ch.	C I.	3	Y	P	F.	N	Pu.	N	N	Til.	N	Bosch.	Bosch.	P.B&B.	Own.	f-Pic.	½ Own	4.90	E-R	E-T	M*	Gem.	S-51.	Bowen
Cleveland 43	115	31x5.25	Own. 43	6-3 1/16x4¾	23.4	219	L	Ch.	C I.	3	Y	P	F.	N	Pu.	N	N	Sch.	N	Bosch.	Bosch.	P.B&B.	Own.	f-Sne.	½ Own	4.90	E-R	E-T	M*	CAS.	S-54.	Bowen
Cunningham V-6	132–142	33x6.75	Own. V8	8-3¾x5	45.0	442	L	He.	C T.	3	N	P	F.	N	Pu.	Y	N	Str.	N	Delco.	Delco.	D.Own.	Own.	f-Sne.	Fl Tim.	4.23	I-F.	I-F.	M	Gem.	J-62.	Pr-Al.
Dagmar 6-60	120	32x6.20	Lyc. 4S	6-3¼x4½	25.3	224	L	Ch.	C I.	4	....	P	C.	N	Pu.	N	....	Sch.	N	Delco.	Delco.	P.B&B.	W-M.	m-Spi.	½ Sal.	5.10	E-R	E-T	H*	Ross.	S-52.	Pr-Al.
Dagmar 6-70	138	33x5†	Con. 6J	6-3¾x5	33.8	331	L	He.	C I.	4	....	P	C.	N	Pu.	N	....	Sch.	N	Delco.	Delco.	D.B-L.	B-L.	m-Spi.	½ Tim.	4.90	E-R	I-R.	N	Gem.	S-52.	Pr-Al.
Davis 92-27	115	30x5.77	Con. 11U	6-3¼x4⅝	25.3	230	L	Ch.	C I.	7	Y	P	C.	N	Pu.	N	N	Str.	Y	Delco.	Delco.	P.B&B.	W-G.	m-Pet.	½ Col.	4.90	E-F.	E-T	H	Ross.	S-52.	Oc-Gi.
Davis 93-27	109	29x4.95	Con. 20L	6-2¾x4¾	18.1	169	L	Ch.	C I.	4	N	P	C.	N	Pu.	N	N	Til.	N	Delco.	Delco.	P.B&B.	W-G.	m-Pet.	½ Col.	5.3	E-F.	E-T	H	Ross.	S-51½	Oc-Gi.
Diana St. 8	125½	32x6.00	Cont. 12Z	8-3 x4¼	28.8	240	L	Ch.	C I.	5	Y	PK.	F.	Pu.	N	Y	Str.	Y	Delco.	Delco.	P.B&B.	War.	m-Mec.	½ Col.	5.10	E-F.	E-T	H	Ross.	S-54¼	Pr-Al.
Dodge Brothers	116	31x5.25	Own.	4-3 7/16x4½	24.0	212	L	He.	Al.	3	N	P	S.	N	Pu.	N	N	Ste.	N	N-E.	N-E.	D.Own.	Own.	m-Own.	½ Own.	4.16	E-R	I-R.	N	Own.	S-55.	Pr-Ze.
Duesenberg St. 8	134–141	33x5	Own. A	8-2 7/16x5	26.4	260	I	BO.	Al.	3	N	PK.	Y	Pu.	Y	N	Sch.	N	Delco.	Delco.	P.Own.	Own.	f-Cli.	½ Own.	4.90	I-F.	E-T	H	Ross.	S-59.	Pr-Do.
DuPont D	124	32x6.20	Wis. Y	6-3⅜x5	27.3	268	I	Ch.	C I.	3	N	P	C.	N	Pu.	N	N	Sch.	N	Bosch.	Bosch.	D.Long.	Cpl.	m-Alm.	½ Col.	4.45	E-F.	E-T	H	Ross.	S-59.	Pr-Al.
Durant A-22	109	30x5.25	Own.	4-3 7/16x4¼	24.0	200	I	He.	Al.	3	N	P	S.	N	Pu.	N	N	Til.	N	A-L.	A-L.	P.Own.	Own.	m-Spi.	½ Own.	4.33	E-R	I-R.	N	Own.	S-59.	Pr-Al.
Elcar 4-55	116	30x5.25	Lyc. CE	4-3 11/16x5	21.8	213	L	He.	Al.	5	N	P	C.	N	Th.	N	N	Swan.	N	Remy.	Remy.	P.Long.	W-G.	m-Mec.	½ Sal.	4.70	E-R	E-T	H*	Ross.	S-50½	Pr-Al.
Elcar 6-65	116	30x5.25	Lyc. 4SM	6-3¼x4¼	25.3	222	L	Ch.	C I.	4	N	P	C.	N	Pu.	N	N	Swan.	N	Remy.	Remy.	P.Long.	W-G.	m-Mec.	½ Sal.	4.70	E-F.	E-T	H	Ross.	S-51.	Pr-Al.
Elcar 8-81	127	32x6.00	Lyc. 4H	8-3¼x4½	33.8	299	L	Ch.	C I.	5	Y	P	C.	Y	Pu.	N	N	Swan.	N	Remy.	Remy.	D.Long.	W-G.	m-Mec.	½ Sal.	4.71	E-F.	E-T	H	Ross.	S-51.	Pr-Al.
	132	32x6.20																												
Essex 6	110½	30x4.75	Own. 6	6-2 11/16x4¼	17.3	145	L	Ch.	Al.	3	N	Sp.	N	Th.	N	Y	Ste.	N	Bosch.	Bosch.	D.Own.	Own.	m-Spi.	½ Own.	5.60	E-R	I-R.	N	Own.	S-54⅞	Ow.
Flint Z-18	110	30x5.25	Con. 9L	6-2¾x4¾	18.1	169	L	Ch.	C I.	4	N	PK.	N	Pu.	N	N	Zen.	N	A-L.	A-L.	P.Own.	War.	m-U-M.	½ Ada.	4.87	E-R	E-T	N	War.	S-52.	Pr-Ze.
Flint B-60	115	30x5.77	Con. 14U	6-3¼x4⅝	25.3	230	L	Ch.	C I.	7	Y	P	C.	Y	Pu.	Y	N	Str.	Y	A-L.	A-L.	P.Own.	War.	m-Spi.	½ Ada.	4.77	I-F.	E-T	H	Ross.	S-51½	Pr-Ze.
Flint E-80	120	32x6.20	Con. 6E	6-3⅜x5	27.3	268	L	Ch.	C I.	7	Y	P	C.	Y	Pu.	Y	N	Str.	Y	DeJo.	DeJo.	P.Own.	War.	m-Spi.	½ Ada.	4.09 4.77	I-F.	E-T	H	Ross.	S-55.	Pr-Ze.
Ford T	100	29x4.40	Own. T	4-3¾x4	22.5	177	L	He.	C I.	3	N	Sp.	N	Th.	N	N	Own.	N	Own.	Own.	D.Own.	Own.	m-Own.	½ Own.	3.63	E-T	I-R.	N	Own.	O-43½	OG.
Franklin 11	119	31x5.25	Own. 11	6-3½x4	25.3	199	I	Ch.	Al.	7	Y	P	C.	N	A.	N	N	Str.	Y	A-K.	Dyn.	P.B-L.	Own.	m-Spi.	½ Own.	4.73	E-T	E-R	N	Own.	E-38.	Pr-Ze.
Gardner 6B	118	31x5.25	Lyc. 4SM	6-3¼x4½	25.3	224	L	Ch.	C I.	4	N	P	C.	N	Pu.	Y	N	Sch.	N	Remy.	Remy.	P.B&B.	War.	m-Cle.	½ Col.	4.90	I-F.	I-R.	M	Ross.	S-57.	Pr-Al.
Gardner 8B	125	32x6.00	Lyc. 4HM	8-3¼x4½	33.8	298	L	Ch.	C I.	5	Y	P	C.	N	Pu.	Y	N	Sch.	N	Remy.	Remy.	P.B&B.	War.	m-Cle.	½ Col.	5.10	I-F.	I-R.	M	Ross.	S-57.	Pr-Al.
Gray S	105	29x4.40	Own. R	4-3⅜x4	21.0	165	L	He.	C I.	3	....	Sp.	Y	Th.	N	....	Scoe.	N	A-L.	A-L.	P.Own.	Det.	f-Sne.	½ Own.	3.90	B-F.	E-T	M	Own.	2 Q-30	Pr-Ze.
Hertz D-1	114	30x5.77	Con. 18U	6-3¼x4⅝	25.3	196	L	Ch.	C I.	7	Y	P	F.	N	Pu.	N	N	Zen.	Y	Delco.	Delco.	D.Long.	Det.	m-Alm.	½ Tim.	4.89	E-R	E-T	M	Ross.	S-56.	Pr-Al.
Hudson Super 6	127⅜	33x6.00	Own. 6	6-3½x5	29.4	288	L	Ch.	Al.	4	N	Sp.	N	Pu.	N	Y	Ste.	N	Bosch.	Bosch.	D.Own.	Own.	m-Spi.	½ Own.	4.45	E-R	I-R.	N	Gem.	S-57 11/16	Ow.
Hupmobile "A"	114	30x5.25	Own. "A"	6-3 1/16x4¼	23.4	196	L	Ch.	C I.	4	Y	P	C.	Y	Pu.	Y	N	Str.	N	A-L.	A-L.	P-B&B.	Det.	m-Mec.	½ Own.	4.90	B-F.	E-R	M	Ross.	S-54.	Pr-Al.
Hupmobile E-2	125	33x6.00	Own. E-2	8-3 x4¾	28.8	268	L	Ch.	C I.	5	Y	PK.	Y	Pu.	Y	N	Str.	N	Delco.	A-L.	P.Long.	Det.	m.	½ Own.	4.91	E-F.	E-T	H	Ross.	S-56½	Pr-Ba.
Jewett New Day	109	29x4.75	Con. Spec.	6-2¾x4¾	18.1	169	L	Ch.	C I.	4	N	PK.	N	Pu.	N	N	Joh.	N	Remy.	Remy.	P.Roc.	War.	m-Mec.	½ Sal.	4.90	E-F.	E-T	H	Gem.	S-54.	Pr-Ze.
Jordan Series A	125½	32x6.20	Con. Spec.	8-3 x4¾	28.8	268	L	Ch.	C I.	5	Y	P	F.	N	Pu.	Y	N	Str.	Y	Bosch.	Bosch.	P.Det.	Det.	m-Alm.	½ Tim.	4.64	E-F.	E-T	H	Gem.	S-55¾	Pr-Al.
Jordan J	116	30x6.00	Con. Spec.	8-2 7/16x4¾	26.4	247	L	Ch.	C I.	5	Y	P	F.	N	Pu.	Y	N	Str.	Y	Bosch.	Bosch.	P.Long.	War.	m-Alm.	½ Tim.	4.45	E-F.	E-T	H	Gem.	S-55¾	Pr-Al.
Kissel 55	121	33x6.00	Own. 55	6-3 1/16x5 1/8	32.6	265	L	Ch.	Al.	3	N	P	F.	Y	Pu.	Y	N	Str.	Y	Remy.	Remy.	P.B&B.	W-G.	m-Spi.	½ Tim.	4.09	E-F.	E-T	H	Ross.	S-56.	Pr-Da.
Kissel 75	126-137	33x6.00	Own. 75	8-3 1/16x4½	32.6	310	L	Ch.	Al.	5	Y	P	F.	Y	Pu.	Y	N	Sch.	Y	Remy.	Remy.	P.B&B.	W-G.	m-Spi.	½ Tim.	4.90	E-F.	E-T	H	Ross.	S-56.	Pr-Da.
Lexington 6-50	119	30x5.77	Ans. M	6-3 1/16x4½	26.3	233	I	Ch.	C I.	3	....	P	F.	N	Pu.	N	....	Sch.	Y	Delco.	Bosch.	D.Long.	W-G.	f-Pick.	½ Sal.	5.10	E-F.	E-T	H	Ross.	S-56.	Pr-Do.
Lincoln 8	136	33x5†	Own. 8	8-3⅜x5	36.4	358	L	Ch.	Al.	5	N	P	C.	N	Pu.	Y	Y	Str.	Y	Delco.	Delco.	D.Own.	Own.	m-Spi.	Fl Tim.	4.58	E-R	I-R.	N	Own.	S-60.	Pr-Al.
Locomobile Jr. 8	124	30x5.77	Own. Jr. 8	8-2 11/16x4	25.3	199	I	Ch.	C I.	5	....	P	F.	F	Pu.	N	....	Str.	Y	DeJo.	DeJo.	P.Spi.	Own.	m-U-M.	½ Own	4.77 5.11	I-F.	I-R.	Se	Ross.	S-55⅜	Pr-Ze.
Locomobile 48	142	35x6.75	Own. 48	6-4 1/16x5 1/16	48.6	525	T	He.	C I.	7	....	P	F.	F	Pu.	Y	....	Bal.	N	Delco.	Wes.	P.Own.	Own.	m-Spi.	Fl Own.	3.50	B-F.	I-R.	M	Ross.	J-50.	Pr-Ze.
Locomobile "90"	138	33x6.75	Own. 90	6-3 7/16x5¼	36.0	372	L	Ch.	C I.	7	....	P	C.	F	Pu.	Y	....	Str.	Y	DeJo.	DeJo.	P.Own.	Own.	m.	½ Eat.	4.5	I-F.	I-R.	Se	Ross.	S-60.	Pr-Ze.

KEY TO SYMBOLS

*—At extra cost
†—Balloons at extra cost
‡—Overall Length
½—Semi-floating
¾—Three-quarter floating
A—Air
Al—Aluminum
B—Semi-steel
B-F—Both internal and external, four wheels
BO—Bevel Gear Overhead shaft
Ch—Chain
CI—Cast Iron
CO—Chain; Overhead shaft
Cu—Oil and grease cups
D—Multiple disk
E—Full elliptic
E-F—External four wheels
E-R—External rear wheels
E-T—External transmission
f—Fabric
F—Filter
Fl—Full floating
G—Head and side
Gr—Grease cups
H—Horizontal (valves)
H—Hydraulic (brakes)
He—Helical gear
I—In head
Int—Integral
I-F—Internal four wheels
I-R—Internal rear wheels
J—Three-quarter elliptic
K—Cone
L—L head
m—Metal
M—Mechanical
N—None
N—Platform (rear springs)
O—Optional (brakes)
O—Special type (rear springs)
Oc—Oil cups
OG—Oil and Grease Cups
Ow—Oil cups with wick feed
P—Single plate
Pr—Pressure gun
PC—Pressure to all crankshaft and connecting rod bearings
PF—Full pressure to all bearings
PK—Pressure to crankshaft, connecting rods and camshaft bearings
PS—Splash with pressure
Pu—Pump
Q—Quarter elliptic
R—Rectifier
S—Semi-elliptic
Se—Servo
Sep—Separate
SP—Spanish (lubrication)
SP—Spur gear (camshaft drive)
Spe—Special make
Sta—Standard
T—T head
Th—Thermo-syphon
V—Cantilever
Var—Varies
X—Sleeve valve
Y—Yes

(Continued on page 48)

ABBREVIATIONS—NAMES OF MFRS. OF STOCK PARTS

A-K—Atwater-Kent
A-L—Auto-Lite
Ada—Adams
Al—Alemite
Alm—Almetal
Ans—Ansted
B&B—Borg & Beck
B-L—Brown-Lipe
Bal—Ball & Ball
Ba—Bassic cups
Car—Carter
CAS—CAS Products
Cle—Cleveland
Cli—Climax
Con—Continental
Col—Columbia
Cpl—Campbell
Da—Dawson
DeJo—DeJon
Det—Detroit
Do—Dot
Dur—Durston
Dyn—Dyneto
Eat—Eaton
Fli—Flint
Ful—Fuller
Gdr—Goodrich
Gem—Gemmer
Gi—Gits
Hoo—Hoosier
Jac—Jacox
Joh—Johnson
Ju—Justrite
L-N—Leece-Neville
Lav—Lavine
Lyc—Lycoming
M&E—Merchant&Evans
Mar—Marvel
Mec—Mechanics Machine
Mun—Muncie
N-E—North East
Nor—Northway
Pet—Peters
Ray—Rayfield
Roc—Rockford
Sa—Saal
Sal—Salisbury
Sch—Schebler
Sne—Snead
Spe—Special Make
Spi—Spicer
Spl—Splitdorf
Ste—Stewart
Stl—Sterling
Str—Stromberg
Thr—Thermoid
The—Thiemer
Til—Tillotson
Tim—Timken
U-M—Universal Machine
U-P—Universal Products
W-G—Warner Gear
War—Warner
Wes—Westinghouse
W-M—Willys-Morrow
Wis—Wisconsin
Ze—Zerk
Zen—Zenith



New Cadillac surpassing all previous conception

IN so far as the new, 90-degree, eight-cylinder Cadillac is concerned, discussion of mechanical supremacy is unnecessary and almost useless.

That supremacy proclaims itself unmistakably in performance as it has in every Cadillac which preceded the present splendidly successful car.

American lovers of fine motoring have always listened respectfully to assurances which promised an improvement upon Cadillac.

But they have never been lured away because it has always been so simple and so easy a thing to prove to themselves by Cadillac performance that Cadillac has never even been approached.

Once again in the unprecedented sales of the new, 90-degree, eight-cylinder Cadillac we are witnessing that silent turning away—that return to something solid and assured and unmistakably superior which Cadillac has always provided.

In this case, however, Cadillac finds itself almost the only occupant of its own fine car field—and the old Cadillac clientele is being so enormously augmented by new accessions that the careful, painstaking capacities of this great plant are being taxed to the utmost.

The Cadillac market is growing—it will surpass all previous conception in the immediate future.

Priced from $2995 upward, f. o. b. Detroit

NEW 90 DEGREE

CADILLAC

DIVISION OF GENERAL MOTORS CORPORATION

FISHER

Mechanical Specifications of Current Passenger Car Models—Continued

(This list comprises cars distributed on a national basis)

(From page 46)

MAKE AND MODEL	Wheel Base' (Inches)	Tire Size Decimals-Balloons	ENGINE: Make and Model	Number of Cyls., Bore and Stroke	Rated H.P. N.A.C.C.	Piston Displacement	Valve Arrangement	Camshaft Drive	Piston Material	No. Main Bear.	Crankshaft Vib'n Dampener?	Oiling System	Oil Cleaner?	Cooling System	Thermostat?	Radiator Shutters?	Carburetor Make	Air Cleaner?	ELECTRICAL SYSTEM: Ignition System Make	Generator and Starter Make	Clutch—Type and Make	Gear Set—Make	Universals—Type and Make	REAR AXLE: Type and Make	Gear Ratio	BRAKES: Foot—Type and Location	Hand—Type and Location	4 Wheel Type (*=Optional)	Steering Gear—Make	Rear Springs—Type and Length	Chassis Lubrication—Type and Make
Marmon.....74	136	34x7.30	Own....74	6-3¾x5½	33.8	340	I	He..	Al.	3	N	P F.	Y	Pu..	N	N	Sch...	N	Delco	Delco	D.Own..	Own..	m-Spl...	¾ Own..	Var.	E-R	I-R.	M*	Own..	O-45..	Bowen
		32x6.20°							C I																					
McFarlan.....SV	127	33x6.20	Wis.....Y	6-3⅜x5	27.3	268	I	Ch..	C I.	3	....	P F.	N	Pu..	N	....	Ray...	N	Delco	Delco	D.Long..	W-G..	m.....	½ Tim..	4.27	E-F.	E-T	H	Ross..	S-58½	Ow...
McFarlan.....St. 8	131	33x6.20	Lyc....4H	8-3½x4½	33 8	287	L	Ch..	C I.	5	....	P F.	N	Pu..	N	....	Sch...	N	Delco	Delco	P. B&B.	W-G..	m.....	½ Tim..	5.11	E-F	E-T	H	Ross..	S-58½	Ow...
McFarlan.....TV	141¼	33x6.75	Own....TV	6-4½x6	48.6	573	T	He..	Al..	4	....	P F.	N	Pu..	N	....	Ray...	N	DeJo	DeJo	P.B&B..	B-L..	Cle.....	Fl Tim..	3.53	E-F.	I-R.	H	Ross..	S-64..	Bowen
Moon.....London	128	32x6.20	Con....8R	6-3⅜x4½	27.3	242	L	He..	C I.	4	N	P C.	N	Pu..	N	N	Str....	Y	Delco.	Delco.	P.B&B..	B-L..	m-Spi...	½ Tim..	5.09	E-F.	I-R.	H	Ross..	S-54½	Alm—Almetal
Moon.....Series A	113	30x5.25	Con....7Z	6-3⅜x4¼	23.4	196	L	Ch..	C I.	4	N	P C.	N	Pu..	N	N	Str....	N	Delco.	Delco.	P.B&B..	W-G..	m-Spi...	½ Col..	4.90	E-F.	E-T	H	Ross.	S-54..	Pr-Al.	B&B—Borg & Beck
Nash.....Light Six	108	30x4.75	Own.....	6-3x4	21.6	170	L	He.	C I.	7	N	P K	N	Pu..	N	N	Str....	N	Delco.	Delco.	P.B&B.	W-G..	m-Spi...	½ Tim..	5.09	E-F.	I-R.	H	Ross.	S-54½	Pr-Al.	B-L—Brown-Lipe
Nash.....Advanced	121–127	33x6.00	Own...261	6-3⅛x5	28.4	279	I	He..	C I.	7	N	P C.	Y	Pu..	N	N	Car...	N	A-L..	A-L..	P.B&B..	Own..	f-Thr...	½Own..	4.80	B-F.	E-T	M	Ross.	S-50½	Pr-Al.	Ba—Bassic cups
Nash.....Special	112½	31x5.25	Own...231	6-3⅛x4½	23.4	207	I	He..	C I.	3	N	P C.	Y	Pu..	N	N	Mar..	Y	Delco.	Delco.	P.B&B..	Own..	m-Own..	½ Own..	4.50	B-F.	E-T	M	Gem..	S-56½	Pr-Al.	Car—Carter
Oakland.....“6”	113	30x5.25	Own....OS	6-2⅞x4¾	19.8	185	L	Ch..	B...	3	Y	P K	F	Pu..	N	N	Mar..	Y	Remy.	Remy	P. Own..	Mun..	m-Mec..	½ Own..	4.73	E-F.	E-T	M	Jac...	S-53⅞	Pr-Al.	Cle—Cleveland
Oldsmobile.....30	110½	30x4.95	Own....30	6-2¾x4¾	18.2	169	L	Ch.	C I.	3	N	P C.	N	Pu..	N	N	Car...	N	Delco.	Delco.	P.B&B..	Mun..	f-Gdr...	½ Own..	5.10	E-R	E-T	N	Jac...	S-62½	Pr-Dot	Cli—Climax
Overland.....96	100¼	27x4.40	Own.....	4-3½x4⅜	15 6	134	L	Ch..	C I.	3	N	P C.	N	Pu..	N	N	Til...	N	A-L..	A-L..	P.B&B.	Own..	m-Mec..	½ Own..	4.55	I-F.	I-R.	M	Own..	48½	.....	Con—Continental
Overland.....91	100	29x4.40	Own....91	4-3½x4	19.6	154	L	He..	C I.	3	N	Sp..	N	Th..	N	N	Til...	N	A-L..	A-L..	P.B&B.	Own..	m-Own..	½ Own..	4.50	E-R	I-R.	M	Own..	O-25..	OG..	Col—Columbia
Overland.....93	112¾	29x4.95	Own....93	6-3 x4	21.6	170	L	He..	Al..	3	N	P C.	N	Pu..	N	N	Til...	N	A-L..	A-L..	D.Own..	Own..	m-Own..	½ Own..	4.50	E-R	I-R.	N	Own.	O-25..	OG..	Cpl—Campbell
Packard.....6	126–133	33x5.77	Own.....6	6-3½x5	29.4	289	L	Ch..	C I.	7	Y	P F.	R	Pu..	Y	Y	Own...	N	Delco	Dyn.	D.Own..	Own..	m-Mec..	½ Own..	5.11	E-R	E-T	N	Own.	S-52½	Pr-Al.	DeJo—DeJon
Packard.....8	136½–143½	33x6.75	Own.....8	8-3⅜x5	36.4	358	L	Ch..	C I.	9	N	P F.	N	Pu..	Y	N	Own...	N	Delco.	Dyn.	D.Own..	Own..	m-Mec..	½ Own..	5.10	I-F..	I-R.	M	Own.	S-56..	Bijur	Det—Detroit
Paige.....6-72	125	32x6.00	Own.....	6-3¼x5	25.4	249	L	Ch..	C I.	3	N	P F.	N	Pu..	Y	N	Str...	Y	A-K..	Remy.	D.Long..	W-G..	m-Mec..	½ Sal..	4.82	E-F.	E-T	H	Gem.	S-58..	Pr-Al.	Dit—Ditweiler
	115	31x5.25																							4.66	I-F..	I-R.	M	Own.	S-56..	Bijur	Do—Dot
Peerless.....6-72	126½–133½	33x6.00	Own....72	6-3½x5	29.4	289	L	Ch..	C I.	7	N	P C.	N	Pu..	N	N	Joh...	N	Delco.	Delco.	D.Own..	Own..	m-Alm..	¾ Eat..	4.45	E-F.	I-R.	H	Gem.	S-58..	Pr-Al.	Do—Dot
Peerless.....6-80	116	30x5.77	Con....8U	6-3¼x4⅝	25.3	230	L	Ch..	C I.	7	Y	P K	Y	Pu..	N	N	Str...	N	A-L..	A-L..	P.B&B..	Det..	m-Alm..	½ Col..	4.90	E-F.	I-R.	H	Gem.	S-54..	Pr-Al.	Dur—Durston
Peerless.....8-69	133½	33x6.20	Own....69	8-3¼x5	33.8	332	L	Ch..	C I.	3	N	P F.	Y	Pu..	N	Y	Str...	N	A-L..	A-L..	P.B&B..	Own..	m-Spi...	¾ Eat..	4.46	E-F	E-T	H	Ross.	S-56..	Pr-Al.	Dyn—Dyneto
Pierce Arrow.....33	138	33x5	Own....33	6-4 x5½	38.4	415	T	He..	C I.	3	N	P F.	Y	Pu..	N	Y	Str...	N	Delco	Delco	P. B&B..	Own..	m-Spi...	¾ Eat..	4.42	E-F.	I-R.	H	Ross.	S-54½	Pr-Al.	Eat—Eaton
Pierce Arrow.....80	130	32x5.77	Own....80	6-3½x5	29.4	289	L	Ch..	C I.	7	N	P F.	N	Pu..	Y	Y	Own...	N	Delco	Delco	D.Own..	Own..	m-Spi...	½ Own.	4.29	E-R	I-R.	M*	Own..	S-56..	Pr-Al.	Fli—Flint
Pontiac.....Six	110	29x4.75	Own.....	6-3¼x3¾	25.3	186	L	Ch..	B...	3	N	P S.	N	Pu..	N	N	Car...	N	Remy.	Remy.	P. Own.	Own..	m-Own..	½ Own.	4.18	E-R	I-R.	N	Mun..	S-54..	Pr-Dot	Gem—Gemmer
Reo.....T6	120	32x6.00	Own....T6	6-3⅛x5	24.3	239	G	He..	Al..	4	N	P S.	N	Pu..	N	N	Car...	N	Remy.	Remy.	P. Own.	Own..	m-Own..	½ Own.	4.18	E-R	I-R.	N	Mun..	S-54..	Pr-Ze	Gdr—Goodrich
Revere.....M	131	32x4½†	Mon....M	4-4⅜x6	30.6	361	H	Ch..	Al..	2	....	P C.	Y	Pu..	N	....	Str....	N	Bosch.	Wes...	P.B&B..	B-L..	m-Spi...	½ Own..	Var.	I-R.	E-R	M*	Gem..	S-54½	Pr-Ze	Gem—Gemmer
Revere.....25	131	32x6.20	Con.....6J	6-3¾x5	33.8	331	L	He..	C I.	4	....	P C.	N	Pu..	N	....	Sch...	N	Bosch.	Bosch.	D.Ful...	Ful...	m-Spi...	¾ Col...	Var.	I-F.	E-T	M	Gem..	S-60..	Pr-Al..	Gi—Gits
Rickenbacker.....E	117	31x5.25	Own....E	6-3¼x4¾	25.3	236	L	Ch..	C I.	7	Y	P C.	Y	Pu..	N	N	Str....	Y	Bosch.	Bosch.	P. Long.	Mec	m-Mec..	½ Col...	4.70	I-F.	E-T	M	Gem..	S-60..	Pr-Al.	Hoo—Hoosier
																						War									Jac—Jacox
Rickenbacker.....B-8	121½	33x6.00	Own...B-8	8-3¼x4¾	33.8	315	L	Ch..	C I.	9	Y	P C.	Y	Pu..	N	N	Zen...	Y	Delco.	Bosch.	P. Long.	War..	m-Mec..	½ Col..	4.70	I-F.	E-T	M	Gem..	S-57.	Pr-Al.	Joh—Johnson
Roamer.....6-54-E	118–138	32x4½†	Con....9N	6-3½x5¼	29.4	313	L	He..	C I.	3	N	P S.	N	Pu..	N	N	Str....	N	Spl...	Wes...	P.B&B.	Ful...	f-M&E..	¾ Tim..	4.45	E-R	I-R.	M*	Jac..	S-59.	Pr-Al.	L-N—Leece-Neville
Roamer.....4-75-E	128	32x4½†	R-D....G1	4-4¼x6	28.9	340	H	Ch..	Al..	3	N	P C.	N	Pu..	N	N	Str....	N	Spl...	Wes...	D.B-L...	B-L..	f-M&E..	¾ Tim..	4.63	E-R	I-R.	M*	Jac..	V-55¾	Pr-Al..	Lav—Lavine
Roamer.....6-50-55	115	31x5.25	Con....7U	6-3⅛x4¼	23.4	196	L	Ch..	C I.	4	N	P C.	N	Pu..	N	N	Sch...	N	Spl...	Wes...	P.B&B.	Dur...	f-U-M...	½ Sal...	4.64	E-F.	E-T	H	Ross.	V-55¾	Pr-Al..	M&E—Merchant & Evans
Roamer.....8-88	138	32x6.20	Lyc.....H	8-3⅛x4½	32.5	287	L	Ch..	C I.	4	N	P C.	N	Pu..	N	N	Sch...	N	A-L..	A-L..	P.B&B.	Dur...	f-U-M...	¾ Sal...	4.64	E-F.	E-T	H	Ross.	V-55¾	Pr-Al..	Lyc—Lycoming
Roamer.....8-80	126	36x6.00	Lyc..4HM	8-3¼x4½	33.8	296	L	Ch..	C I.	5	N	P C.	N	Pu..	N	N	Sch...	N	A-L..	A-L..	P.B&B.	Dur...	f-U-M...	¾ Sal...	4.64	E-F.	E-T	H	Ross.	V-55¾	Pr-Al..	Mar—Marvel
Rolls Royce...Silver Ghost	143½	33x5†	Own. 40–50	6-4½x4¾	48.6	453	L	He..	Al..	7	....	P F.	F	Pu..	N	Y	Own...	N	Bosch.	Wes...	K.Own..	Own..	m-Own..	Fl Own..	3.72	I-R.	I-R.	N	Own.	V-54½	Pr-Al.	Mec—Mechanics Machine Co.
Stanley.....262	122	32x5.77	Own. .262	2-4 x5	20.0	126	....	....	C I.	2	....	Sp...	....	....	....	....	Sch...	....	None..	Bosch	None..	None..	f-Thr...	½ Own..	4.50	E-F.	I-R.	H	Ross.	S-58..	Pr....	
Star.....4	103	30x3½	Con. .Spec.	4-3⅜x4¼	18.2	152	L	Ch..	Al..	3	N	P K	N	Pu..	N	N	Til...	N	A-L..	A-L..	P.Own..	Own..	m-Spi...	½ Own.	4.87	E-R	I-R.	N	Own.	S-53¾	Pr-Al.	Mon—Monson
		29x4.40																														
Star.....“St'd. 6”	107	30x1.75	Con. .Spec.	6-2¾x4¾	18.2	169	L	Ch..	C I.	4	N	P K	N	Pu..	N	N	Til...	N	A-L..	A-L..	P.Own..	Own..	m-Spi...	½ Own.	4.87	E-R	I-R.	N	Own.	S-53¾	Pr-Al.	Mun—Muncie
		29x4.40																														
Stearns Knight.....B	119	33x6.00	Own...Kni	4-3¾x5⅝	22.5	249	X	Ch..	C I.	3	N	P C.	N	Pu..	N	N	Joh...	N	DeJo..	DeJo..	D.M&E.	Own..	f-Cli....	½ Own	4.90	I-F..	I-R.	M	Ross..	V-50..	Pr-Al	Ray—Rayfield
Stearns Knight.....75	121	33x6.00	Own...Kni	6-3¼x5	25.4	249	X	Ch..	C I.	4	N	P C.	N	Pu..	N	N	Joh...	N	DeJo..	DeJo..	D.M&E.	Own..	f-Cli....	½ Own..	4.90	I-F..	I-R.	M	Ross..	V-50..	Pr-Al.	Roc—Rockford
Stearns Knight.....95	130	33x6.75	Own...Kni	6-3½x5	29.4	289	X	Ch..	C I.	4	N	P C.	N	Pu..	N	N	Joh...	N	DeJo..	DeJo..	D.M&E.	Own..	f-Cli....	½ Own..	4.90	I-F..	I-R.	M	Ross..	V-50..	Pr-Al.	Sa—Saal
Studebaker.....Sta. 6	113	30x5.25	Own...ER	6-3⅜x4½	27.3	242	L	Ch..	C I.	4	N	P K	F	Pu..	N	N	Str....	Y	Wag..	Wag..	P.Own..	Own..	f-Thr....	½ Own..	4.18	E-R	E-T	H*	Own..	S-50½	Pr-Al.	Sal—Salisbury
																			Remy	Remy												Sch—Schebler
Studebaker.....Spec. 6	120	32x6.00	Own...EQ	6-3½x5	29.4	289	L	He..	C I.	4	Y	P K	F	Pu..	N	N	Str...	Y	Wag..	Wag..	P.Own..	Own..	m-Spi...	½ Own..	4 36	E-R	E-T	H*	Own..	S-56..	Pr-Al.	Sne—Snead
																			Remy	Remy												Spe—Special Make
Studebaker.....Big 6	120	32x5.00	Own...EP	6-3⅞x5	36.0	353	L	He..	C I.	4	Y	P K	F	Pu..	N	N	Bal...	Y	Wag..	Wag..	P.Own..	Own..	m-Spi...	½ Own..	3.69	E-R	E-T	H*	Own..	S-56..	Pr-Al.	Spi—Spicer
																			Remy	Remy					4.08							Spl—Splitdorf
Stutz.....AA	127	32x6.75																														Ste—Stewart
Velie.....60	131	32x6.20	Own.....	8-3½x4½	32.5	287	I	CO.	C I.	9	N	P F.	F	Pu..	N	N	Zen...	Y	Delco.	Delco.	P.B&B..	Det...	m-Mec..	½ Tim..	Var.	I-F.	E-T	Hs	Ross..	S-62..	Myers	Stl—Sterling
	118	30x5 25	Own....52	6-3⅜x4⅝	24.4	221	I	He..	C I.	4	N	P F.	N	Th..	N	N	Str....	N	Remy.	Remy.	P.B&B..	Mec..	m-Cle...	½ Own.	4.08	E-F.	E-T	H	Ross.	S-55..	Pr-Do.	Str—Stromberg
Wills Ste. Claire....T6, W6	127	32x6.00																							4.70							Thr—Thermoid
		32x6.20	Own.....	6-3½x5½	25.4	274	I	BO.	C I.	7	N	P F.	N	Pu..	Y	Y	Sch...	N	Delco	Delco.	P.Own..	Own..	m-Spi...	½ Tim..	4.45	E-F.	E-T	H	Own..	S-58..	Pr-Al.	Til—Tillotson
Wills Ste. Claire. B,C&D68	127	32x6.20	Own. BC68	8-3¼x4	33.8	265	I	BO.	C I.	3	Y	P F.	N	Th..	N	N	Sch...	N	Bosch													
Willys Knight.....66	126	32x6.20	Own....66	6-3¼x4¾	25.4	236	X	Ch..	Al..	7	N	P F.	Y	Pu..	Y	Y	Til...	Y	A-L..	A-L..	D.Own..	Own..	m-Mec..	¾ Own..	5.11	B-F.	I-R.	M	Own..	S-57..	Pr-Al.	Tim—Timken
Willys Knight.....70	113¼	30x5.25	Own....70	6-2½x4⅜	20.7	178	X	Ch..	Al..	7	N	P F.	N	Pu..	Y	N	Til...	Y	A-L..	A-L..	P.B&B..	Own..	m-Mec..	½ Own.	5.11	B-F.	E-T	M	Own..	S-52½	Pr-Al.	

KEY TO SYMBOLS

°—Open Cars
*—At extra cost
†—Balloons at extra cost
½—Semi-floating
¾—Three-quarter floating
A—Air
Al—Aluminum
B—Semi-steel
B-F—Both internal and external
C—Fabric
Ch—Chain
CI—Cast iron
CO—Chain; Overhead shaft
Cu—Oil and grease cups
D—Multiple disk
E—Full elliptic
E-F—External four wheels
E-R—External rear wheels
E-T—External transmission
F—Fabric
G—Head and side
Gr—Grease cups
H—Horizontal (valves)
H—Hydraulic (brakes)
He—Helical gear
Hs—Hydrostatic
I—In head
Int—Integral
I-F—Internal four wheels
I-T—Internal rear wheels
3-Q—Three-quarter elliptic
L—L head
m—Metal
M—Mechanical
N—None
N—Platform (rear springs)
O—Optional (brakes)
O—Special type (rear springs)
Oc—Oil cups
OG—Oil and Grease Cups
Ow—Oil cups with wick feed
PC—Pressure to all crankshaft and connecting rod bearings
PF—Full pressure to all bearings
PK—Pressure to crankshaft, connecting rods and camshaft bearings
PS—Splash with pressure
Pu—Pump
Q—Quarter elliptic
R—Rectifier
S—Semi-elliptic
Sp—Spanish (lubrication)
Sp—Spur gear (camshaft drive)
Spe—Special make
Sta—Standard
T—T head
Th—Thermo-syphon
V—Cantilever
Var—Varies
V—Sleeve valve

ABBREVIATIONS—NAMES OF MFRS. OF STOCK PARTS

A-K—Atwater Kent
A-L—Auto-Lite
Ada—Adams
Al—Alemite
B&B—Borg & Beck
B-L—Brown-Lipe
Ba—Bassic cups
Car—Carter
Cle—Cleveland
Cli—Climax
Con—Continental
Col—Columbia
Cpl—Campbell
DeJo—DeJon
Det—Detroit
Dit—Ditweiler
Do—Dot
Dur—Durston
Dyn—Dyneto
Eat—Eaton
Fli—Flint
Ful—Fuller
Gdr—Goodrich
Gem—Gemmer
Gi—Gits
Hoo—Hoosier
Jac—Jacox
Joh—Johnson
L-N—Leece-Neville
Lav—Lavine
Lyc—Lycoming
M&E—Merchant & Evans
Mar—Marvel
Mec—Mechanics Machine Co.
Mon—Monson
Mun—Muncie
N-E—North East
Nor—Northway
Pet—Peters
R-D—Rochester-Duesenberg
Ray—Rayfield
Roc—Rockford
Sa—Saal
Sal—Salisbury
Sch—Schebler
Sne—Snead
Spe—Special Make
Spi—Spicer
Spl—Splitdorf
Ste—Stewart
Stl—Sterling
Str—Stromberg
Thr—Thermoid
Til—Tillotson
Tim—Timken
U-M—Universal Machine
U-P—Universal Products
W-G—Warner Gear
Wag—Wagner
War—Warner
Wat—Watford
Wes—Westinghouse
W-M—Willys-Morrow
Wis—Wisconsin
Ze—Zerk
Zen—Zenith

"SOMETHING IS HAPPENING IN THE AUTOMOTIVE WORLD"

ALMOST A YEAR AGO the industry began to say: "Something is happening in the automotive world".

The public had found itself suddenly presented with a car that fulfilled beyond all expectations its conception of what a car should be and what a car should do.

It was powerful. It performed with dash and spirit. It was at home in any traffic. It was easy to drive and easy to park. It was beautiful. It offered comfort and luxury . . . . yet its price was low.

Immediately great interest focused upon this car. Day by day that interest grew more and more intense. It doubled and redoubled as the weeks and months rolled by. On thoroughfare and highway this car asked no favors, feared no road.

Then, when endurance took first place among its proved qualities, in the hands of thousands of owners—the final proof of excellence was established.

Today public preference stands at a new peak of enthusiasm for the car that won its place by right of merit.

This public preference confirms the fact that something, indeed, was happening a year ago.

With the greatest year in Oldsmobile history now a highlight in the industry itself; with thousands of owners lavishing their praise upon this car; with a record of performance and stamina established . . . .

Now what was happening may be freely told:

GENERAL MOTORS was mustering new hearts and heads and hands to the service of Oldsmobile. A new staff of leaders was taking command.

From distinguished service, in all phases of the industry, they came, bringing with them a new appreciation of public wants and needs, a new will to serve, new pride, new vigor and new skill.

They shared a common vision, cherished a common aim, held firm to a common purpose which they were determined to achieve.

And with Oldsmobile each man recognized the opportunity to achieve that common purpose. Shoulder to shoulder with him stood others just as earnest, just as capable as he. At their absolute command were the envied facilities and veteran craftsmen of one of the pioneer manufacturers of the automobile world. Back of all this, at their disposal, lay the vast resources of General Motors.

Seizing these facilities, they bent to their task with a will.

United in their purpose they dedicated to its achievement, not only heads and hands, but hearts . . . their whole-souled ambition to perform a public service, to fulfill a public need.

How well they succeeded, everyone now knows.

Why they succeeded is this:

DEEP-ROOTED in the mind of every man who plans or builds or tests Oldsmobile is the unwavering determination that his knowledge and skill and resources shall render constant service . . . .

. . that the American family may have, at a moderate investment, a car that gratifies their finer tastes as well as satisfies their every need . . . .

. . that Oldsmobile shall not be wanting in a single essential factor that contributes to performance, comfort, beauty or long life . . . .

. . that in design, material and manufacture of every detail the strictest standards shall be rigidly maintained . . . .

. . that their boundless resources and matchless facilities shall be utilized to the utmost to provide these qualities at the lowest possible cost . . . .

This is more than a purpose; it is a creed.

It is accepted as a trust, with the firm determination that nothing shall ever deflect the loyalty of Oldsmobile from this ideal.

This—our steadfast pledge—is your firm assurance.

OLDS MOTOR WORKS LANSING, MICHIGAN

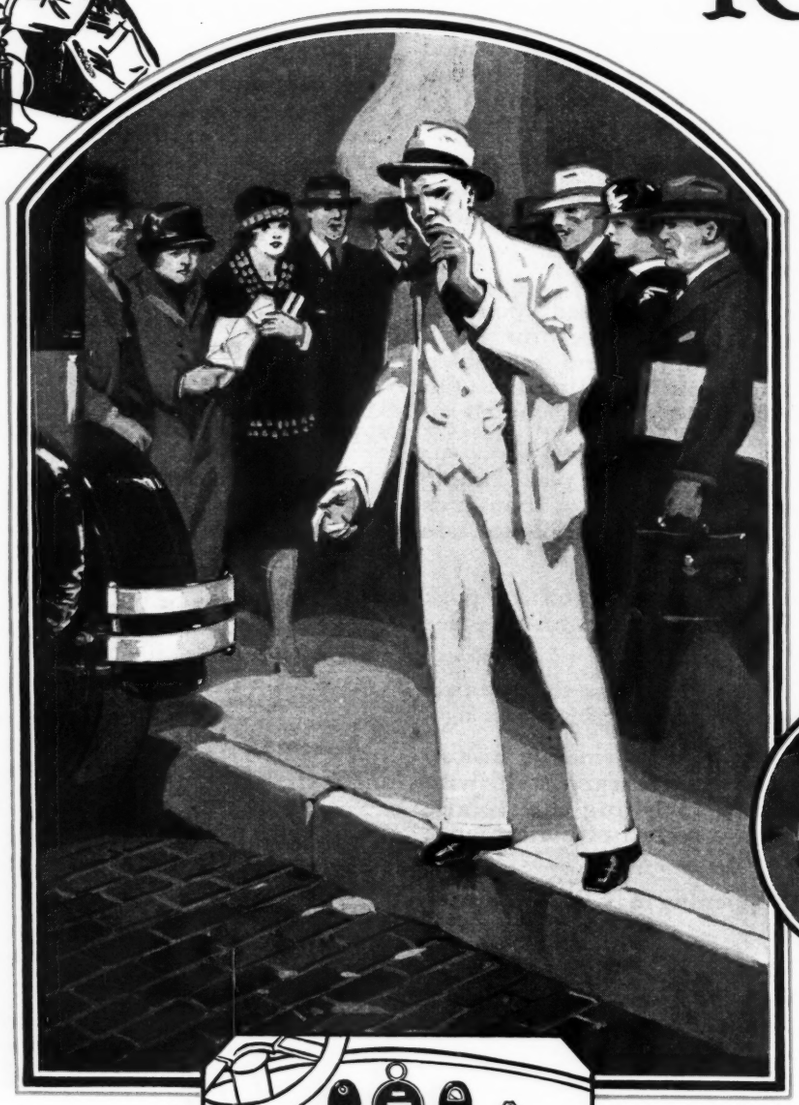
OLDSMOBILE SIX

PRODUCT OF GENERAL MOTORS

Only 1 lock

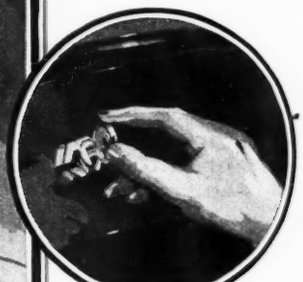


Actual investigation in police courts reveals the fact that only 10 out of over 60 stolen cars are locked. Owners neglect to take ordinary precaution. Many of these stolen cars are returned but a large percentage of them are damaged . . . many beyond economical repair.

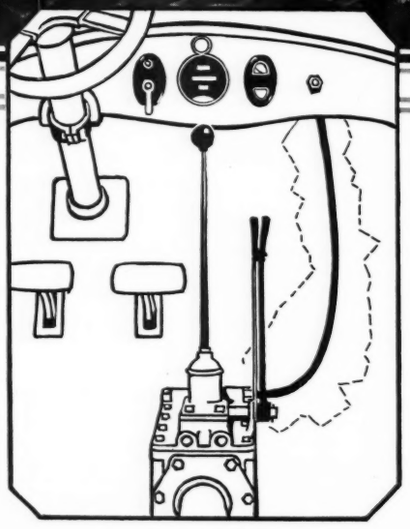


Gone! Stolen!

Statistics bear out the fact that about 80% of cars stolen are those whose drivers forget to lock them. The Blossom Lock is forget proof. When the driver removes his ignition key the car is automatically locked.



One Key



The Blossom Lock is theftproof. Approved by Underwriters Laboratories. Nothing to get out of order. It is mechanical, not electrical. Operates independently of steering apparatus or any other emergency control, thereby eliminating danger. Conveniently located on the instrument board.

Because of the almost inaccessible position of the lock housing behind the instrument board and the locking mechanism on the transmission cover it is too much for the thief. Even if he were to penetrate the lock housing or transmission cover the car could not be operated.

out of 8 owners their cars

Ordinary locking methods promote carelessness and neglect. Owners forget—But here's a non-forgetable lock—One key, the ignition key, locks both ignition and transmission.

Stolen cars are rarely if ever covered by insurance. Many times when recovered they are damaged beyond economical repair. As a result the car owner loses.

It is small wonder that the car-owning public, car dealers and underwriters are rapidly beginning to feel the need of more adequate protection against theft.

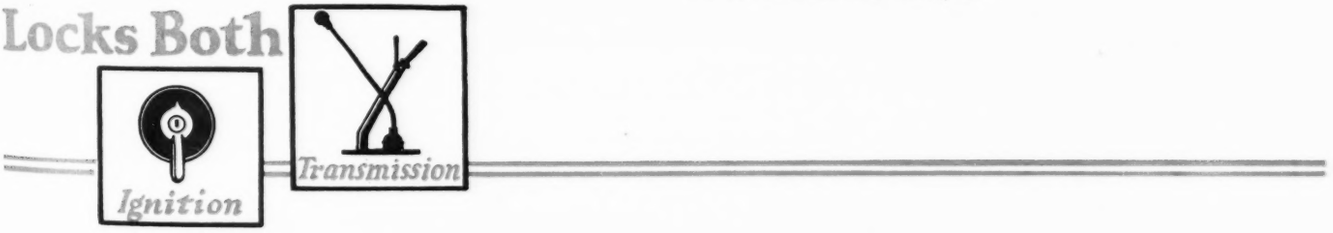
They want a lock,—a real lock that provides absolute protection. They want a lock that is not only theft-proof but forget-proof as well, because the prevailing method of locking cars promotes negligence and forgetfulness.

Such a lock is now available. It is a new and different lock—different because ONE KEY locks both ignition and transmission **coincidentally.** This lock is the BLOSSOM LOCK and it is the only lock which locks both ignition and transmission in one and the same operation. When the ignition key is removed from the keyhole the car is automatically made theft-proof.

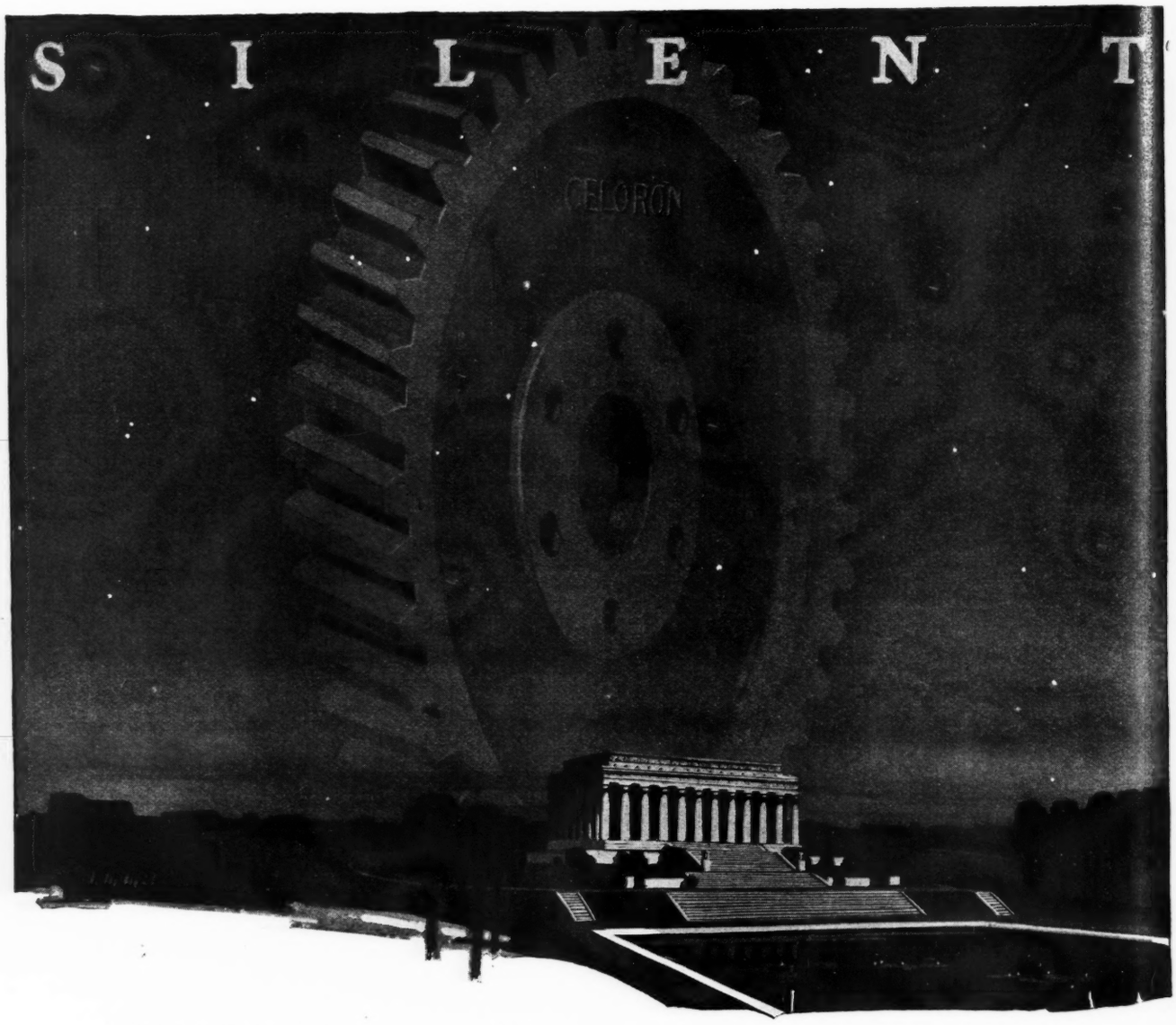
No wonder dealers find the sale of the Blossom Lock without resistance. In fact, to see it is to buy it. Car owners are quick to see its merit and its superiority over ordinary, dangerous, theft-inviting devices.

It sells to car owners for $16.00, a price which leaves ample margin for the dealer. A strong advertising program which includes the very latest in store display and direct mail assistance is helping dealers create widespread demand.

If you are interested in a non-competitive fast selling product of this kind write or wire at once for details. THE BLOSSOM LOCK COMPANY, 1170 E. 152nd St., CLEVELAND, OHIO.



BLOSSOM COINCIDENTAL LOCK



WE SPEAK of silent reverence, silent peace, silent strength. How many qualities attain their highest form of expression in Silence! Silent power! It is the ideal of every motor maker and every automobile owner. To the realization of this ideal, Celoron Silent Timing Gears have made a notable contribution—hushing the noisy front-ends of more than a million motors.

And in achieving silence, Celoron Silent Timing Gears are contributing something more than the luxury of silence; something more than the elimination of grinding metal-to-metal contacts in the timing mechanism. Their tough durability—setting new standards of permanent accuracy—is preserving that perfect timing which prolongs the life of the motor itself.

This unvarying dependability of Celoron Timing Gears ensures the customer satisfaction that builds business for the repair man. Uniform accuracy saves valuable installation time and labor. Ample stocks, maintained by N. A. P. A. distributors and jobbers everywhere, keep deliveries prompt and sure.

DIAMOND STATE FIBRE COMPANY

BRIDGEPORT, PA. Paris, France London, England CHICAGO, ILL.

Diamond State Fibre Co. of Canada, Ltd., Toronto, Canada

Celoron Timing Gears Have These Distinct Advantages

1. Non-metallic; Eliminate metal-to-metal contact
2. Silent at all speeds
3. Stay silent permanently
4. Resilient; Save every part of the timing mechanism from the effects of vibration and shock
5. Prolong the life of shaft bearings
6. Accurately cut, they keep timing accurate
7. Maintain gas and oil economy
8. Prevent tear-downs
9. Grease-proof, oil-proof, water-proof
10. Will not warp or swell

When at the Sesqui-Centennial, visit our Bridgeport, Pa., factory. Let us show you how Celoron and Diamond Fibre are manufactured.

CELORON
TIMING GEARS

STOP!

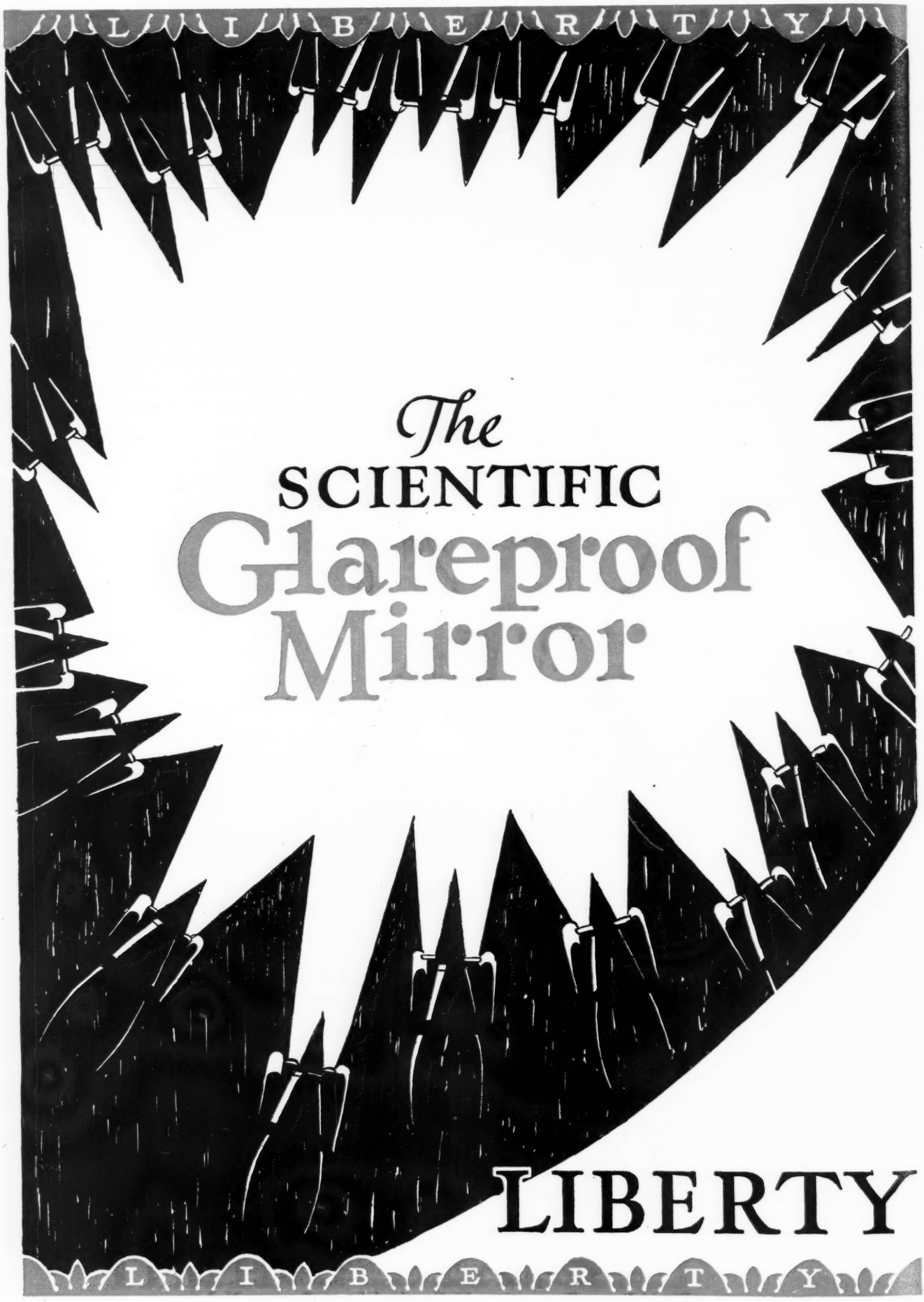


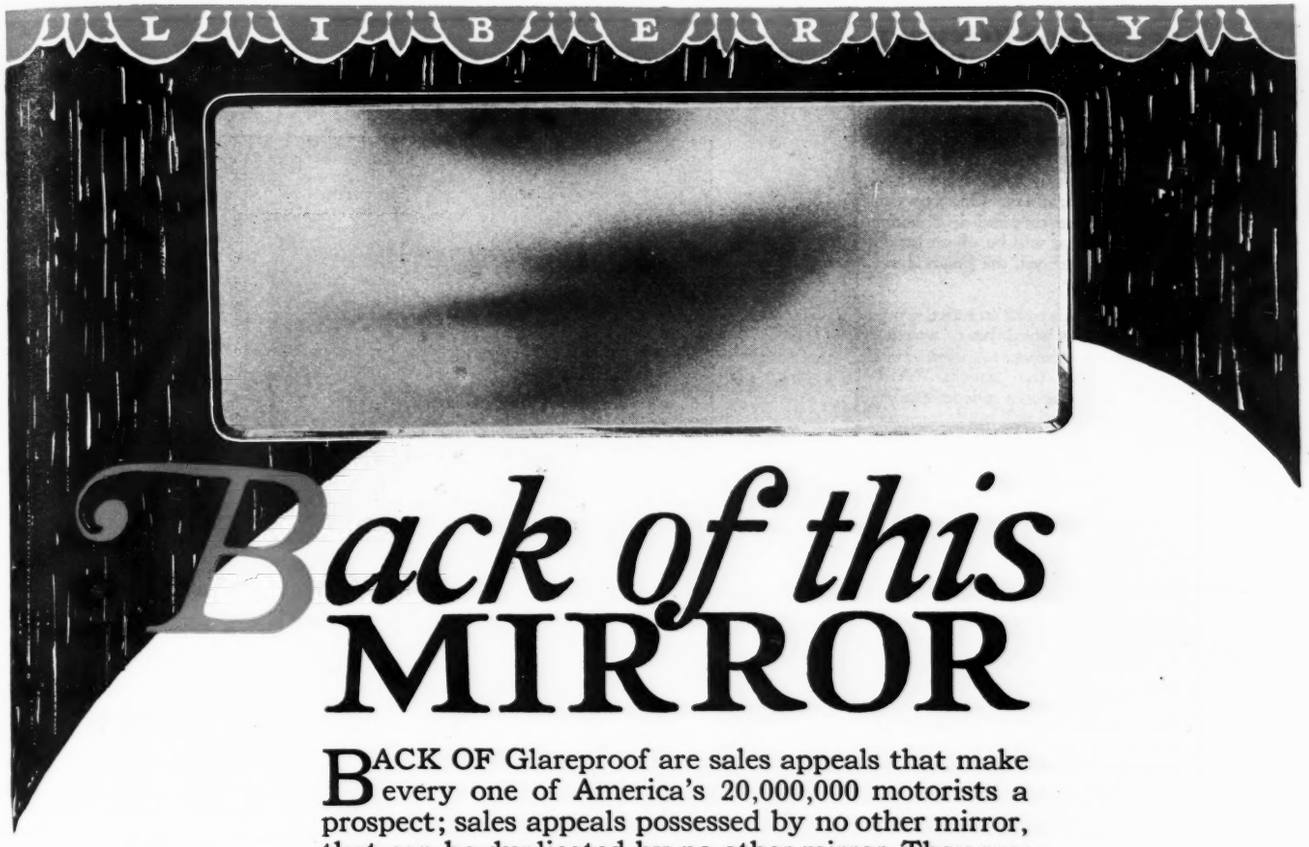
Are You Sure You Can?

Grafild brake linings are new. They are different! Graphite treatment makes their action positive—wet or dry, hot or cold!

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BRAKE LINING

World Bestos Corporation, 52 Courtland Street, Paterson, N. J.


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The
SCIENTIFIC
Glareproof
Mirror
LIBERTY
L I B E R T Y



Back of this MIRROR

BACK OF Glareproof are sales appeals that make every one of America's 20,000,000 motorists a prospect; sales appeals possessed by no other mirror, that can be duplicated by no other mirror. They are:

Visibility—Day or Night, Glareproof shows cleaner, clearer, sharper images, without eyestrain.

Safety—All headlight, sun, and snow glare is absorbed, and cars are shown at their correct distance back.

Permanence—Glareproof will outlast and out-test any other mirror under any conditions.

Assurance—Developed in two years of experiment—subjected to a year of stringent tests—made by a mirror manufacturer of 31 years experience, who has made millions of auto mirrors—Glareproof is not an experiment, but a proven product.

Glareproof will be submitted any time, for any test with any other mirror, and will demonstrate its absolute superiority.

Write today for your copy of
"What Glareproof Means to You"

LIBERTY MIRROR WORKS
PITTSBURGH

MIRROR WORKS



Formerly a Necessary Evil Now a Profitable Business

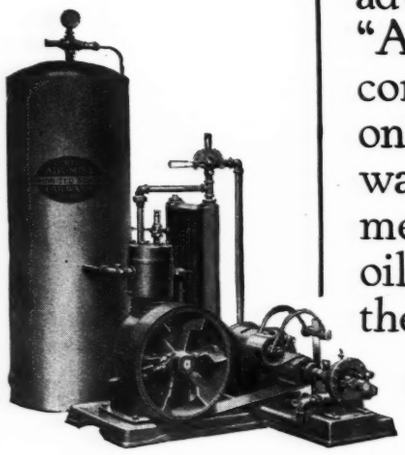
Labor cost makes car washing by hand an unprofitable item in most garages. The Curtis "AIR MIST" system does the work better, and does it by machinery. One man can turn out more cars and do a better job. Every car will be *clean* inside and out. Better yet, the finish is not harmed.

"AIR MIST" is a soft atomized spray. High-pressure solid-water systems make it dangerous to even hold your hand in the stream. "AIR MIST" spray is not uncomfortable to the hand and will not injure anything. It cleans by softening caked mud and sloughing it gently off the surface. Every garage needs the "AIR MIST" system. Separate car washing service stations can also be profitably operated if desired.

CURTIS AIR COMPRESSORS-HOISTS-TROLLEYS-CRANES ST. LOUIS

The "AIR MIST" System is built by the makers of the popular Curtis Compressors for tire inflation

In Air Compressors for every purpose the name "Curtis" means exceptional value. Quantity production, manufacturing efficiency and proven design make possible a quality compressor at less than usual prices. Wherever compressed air is used — as in operation of pneumatic tools, spray painting, hoisting, rock drilling, pavement breaking, car washing and a thousand other uses besides tire inflation, "Curtis" is the standard compressor.





Curtis

"AIR MIST" IMPROVED CAR WASH SYSTEM

(WITH WESTCO WATER AMPLIFIER)

The name "AIR MIST" is coming to mean a different and better kind of car wash. Motorists are quick to learn its advantages. They will recognize the "AIR MIST" sign over your door, and come to you for their work. You not only can make real profits from car washing, but will sell these new customers other things besides — accessories, oil, gasoline, repair work, etc. Send for the "AIR MIST" booklet.

Curtis Pneumatic Machinery Co.
1901 Kienlen Ave., St. Louis, Mo.

1854 — Seventy-Two Years — 1926

CURTIS Pneumatic Machinery Co.
1957 Kienlen Ave., ST. LOUIS, MO.
518 U Hudson Terminal, New York City.

Please send me, without obligation, your **new** free "AIR MIST" catalogue

Name..... City.....

Address..... State .....

CURTIS
COMPRESSORS-HOISTS-CRANES
AND AIRMIST CAR WASH SYSTEM



Biggest Thing in the Replacement Business Today

Friends marvel at the volume of Apex Innerings sold annually. Jobbers wonder where they all go. But to us it's not surprising. We know that

APEX Genuine Innerings

should go with every set of replacement piston rings a jobber sells. We know that garage men can make millions annually by merely telling car owners of the Apex Guarantee to stop oil pumping and piston slap; increase power, pick-up and performance without reboring. We know that car dealers can turn trade-ins into ready cash in record breaking time by simply installing Apex Innerings.

And many thousands are doing it. But the innerings must be the genuine Apex. For no imitation has

1. The long reverse curve that gently takes up the slap of the piston.
2. The rounded points of contact that can not wear through and break.
3. The guarantee tag that means financial and moral responsibility.
4. The cut at the crimp that insures equal radial cushion the entire circumference of the piston ring.
5. The imported steel that will not lose resiliency up to 100,000 miles of road travel.

Protect Yourself

A real good jobber in your territory has Genuine Apex Innerings. Don't take chances on makeshifts. Write to us. We'll tell you where to get the one Innering guaranteed to safely do all we claim.

THOMSON MANUFACTURING COMPANY
Dept. 7 Peoria, Ill.

GENUINE APEX Innerings

Bigger Demand! than ever before

THOUSANDS of dealers in every section of the country are reporting constantly increased sales of Fulton products. Today the Fulton volume of business is the largest in the history of the company. National advertising is playing an important part. Every month millions of readers see the attention-compelling Fulton sales messages. There's real opportunity here! Tie up with this popular line and cash in on the profits.

Let this Counter Demonstrator sell Aermore Exhaust Horns *for You*

Here's a demonstrator that everybody wants to operate! Customers coming into your store are attracted immediately to this working display.

One stroke of the plunger sounds the Aermore — and the distinctive, mellow, far-reaching tones of this signal are heard in all their beauty. Every time the signal is sounded in your store another friend is won — everyone admires this horn because it's musical, because it's different and because it's the most effective signalling device ever developed.

You'll find the Aermore a fast seller! With the big touring season right at hand you will find the Aermore Exhaust Horn a profit-maker that practically sells itself.

The demonstrator is supplied without cost when you stock Aermores. Ask your jobber's salesman for full details.



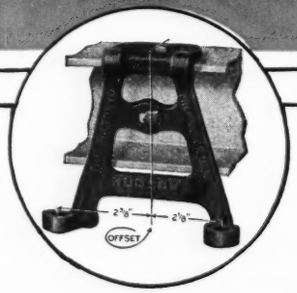
Note These Popular Prices

Five Sizes, Price, Complete with Valve and Hand Control:

Ford Special, 13" length	$ 7
No. 1—15" length, for small cars	10
No. 0—17" length, for medium cars	12
No. 00—22" length, for large cars	14
No. 000—Extra deep tone, Motor Bus Special	16

(Specify make and model of car when ordering.)

THE FULTON COMPANY, 732-75th Ave., MILWAUKEE, WIS.



NOW Only One Dollar

Hudson's Model B Crank Case Repair Arm— fits either side of any Ford crank case without drilling, filing, or forcing. Holds motor in original alignment. Quickly and easily installed. Better satisfied customers—*more sales*. $1.00 each.

FUL

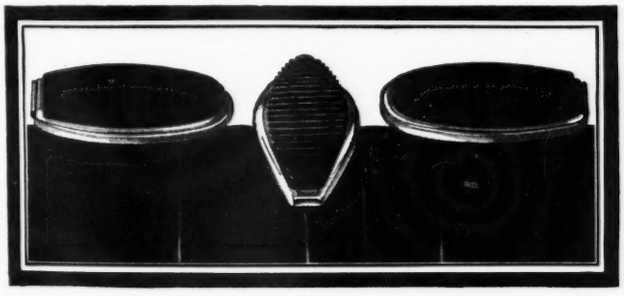
Sure Profit! for Fulton Dealers

New Improved Fulton Accelerator

MORE popular than ever! Each month sets up a new sales record. Ford owners want it because of its many outstanding advantages. Footpiece is genuine Fulton (*Perfection*) Pedal Pad of live, black rubber on nickeled pedal. Assures comfort by absorbing vibration and resting the foot. Assures safety because of 5-inch space between brake pedal and foot piece of accelerator. Direct action to carburetor — simple and positive. Installed in a few minutes.

PRICE ONLY $1.00





Fulton (*Perfection*) Pedal Pads

Ford owners want these neat, practical pads for greater safety and comfort. That's why they sell fast. Thick, live rubber, firmly held in a nickel frame. Attached in a few seconds.

For Fords — type D-26 (fit 1926 models) set of 3, $1.00. Type DX (for Fords previous to 1926) set of 3, $1.00. For other cars, set of 2, $1.00.

This Sales-maker Free!



This neat counter display will attract lots of attention. It comes to you equipped with a new improved Fulton Accelerator and a Type D-26 Fulton (*Perfection*) Pedal Pad. It shows the position of these units in a Ford car and gives an actual working demonstration. Stand, fully equipped, free to you with a reasonable order. Ask your jobber's salesman for full details.

THE FULTON COMPANY, 732-75th Ave., MILWAUKEE, WIS.

TON



Fulton Copperhead Socket Wrench No. 4100—Price $3.50

An indispensable tool for garages, tire shops, service stations. The 4 sockets take all ordinary size rim nuts. Leverage can be instantly increased 300%, simply by throwing over the handle. High-carbon steel socket head turns easily. Socket head is copper plated.

THE "BAT" SUCTION SUPER-CHARGER

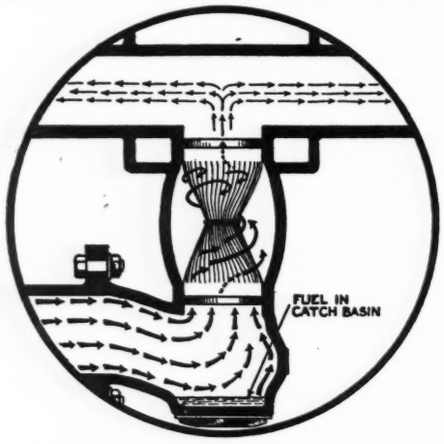
"Functions When the Engine Breathes"

"BAT" SYSTEM OF SUPER-CHARGING — DUAL ROTARY — BAT — HYDRO-CARBON MIXER. — COMBUSTION ENGINES.

Is Now Ready for the Following Cars

Ford, $7.50	Nash Light 6, $27.50	Hudson 6, $32.00	Star 6, $10.00	Jordan line 8, J, $12.50
Chevrolet, $9.50	Nash Special 6, $30.00	Hudson 6 Dual, $40.00	Oldsmobile 6-30, $10.00	Jordan line 8, A, $12.50
Overland 4, $11.50	Nash Advanced 6, $32.00	Duesenberg 8, $35.00	Chrysler 4, $10.00	Junior 8, $12.50
Dodge, $12.00	Buick Standard 6, $30.00	Stutz 8, A, $35.00	Chrysler 6-60, $12.00	
Graham Truck $12.00	Buick Master 6, $32.00	Star 4, $10.00	Chrysler 6-70, $12.50	

This is the "BAT" Suction Super-Charger
A marvel in design and fine workmanship
Installation Time from 10 to 20 Minutes



It is equally important to the smooth operation of the engine to balance the combustible charge in the cylinders as it is to balance the crank shaft, connecting rods, pistons, timing gears, clutch and all other moving parts of the engine.

"BAT" does it.

Other complete installations will follow. Also, we have Standard "BAT" Super-chargers which can be inserted between the carburetor and the manifold either by dropping the carburetor or shortening the manifold. The dimension for the over-all length is 3½", to fit all standard S. A. E. carburetors, 1", 1¼" and 1½". For larger installations multiple installations are used. Write for special installations for fleet owners to suit conditions.

Its Popularity with Dealers Already Makes It a Live One for Distributors

The immediate acceptance and relentless demand for "BAT" Super-chargers has nearly run us off our feet. Dealers from practically every state in the Union have answered our first advertisements. They want to get started—and so do we.

Let's Share the Profits on Its Sale

We must have distributors to help us supply dealers without delay. We must deliver the goods fast so we can all share the profits on its sale.

Dealers and Wholesalers WRITE FOR DETAILS. The "BAT" Super-Charger is one of those things that goes big from the start —and gets bigger.

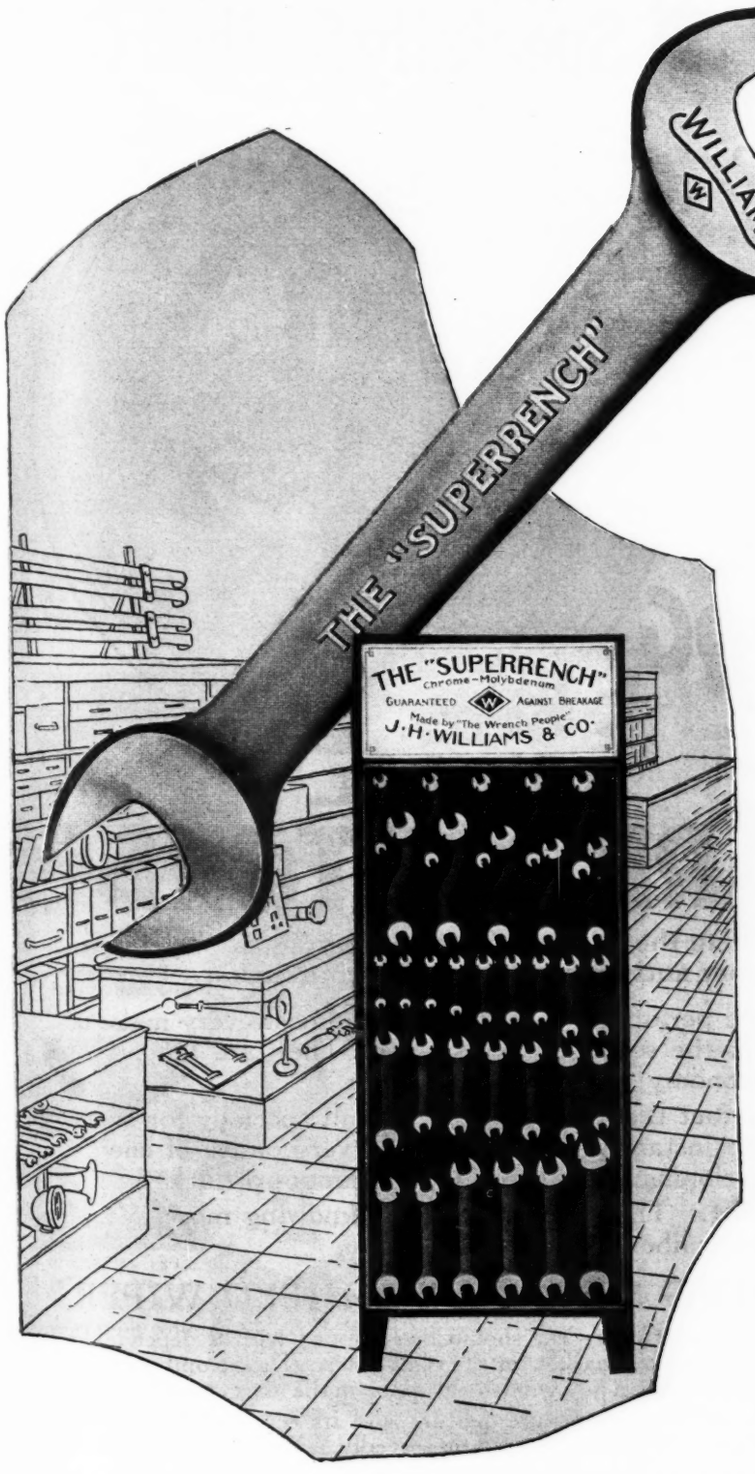
P. H. WEBBER COMPANY

Racine Industrial Plant Building No. 12

Racine WEBBER **Wisconsin**

Manufactured and sold under license of P. J. F. Batenburg, Racine, Wis.

"Superrenches" Have 'em ALL Stopped



Routine jobs or extraordinary jobs—"SUPERRENCHES" lick 'em all.

Even in taking the head off an engine, "SUPERRENCHES" make easy work easier. While on tough jobs where clearance is limited and threads are jammed, "SUPERRENCHES" are invaluable.

Their thin heads and narrow, pointed jaws get in and grip where no clumsy wrench *could* go. And no strain is too great for Chrome-Molybdenum "SUPERRENCHES."

Guaranteed *break-proof* and *spread-proof*.

Whether you buy for use or resale—you'll find "SUPERRENCHES" have 'em all stopped.

WILLIAMS
SUPERIOR DROP-FORGED TOOLS
"SUPERRENCH"
(Chrome Molybdenum)
WRENCHES

Send for details of the Display Board "M" shown. It—and others—provide you with excellent selling help and boost your wrench turnover from the very first day your customers see them. Ask about this proposition—Today!

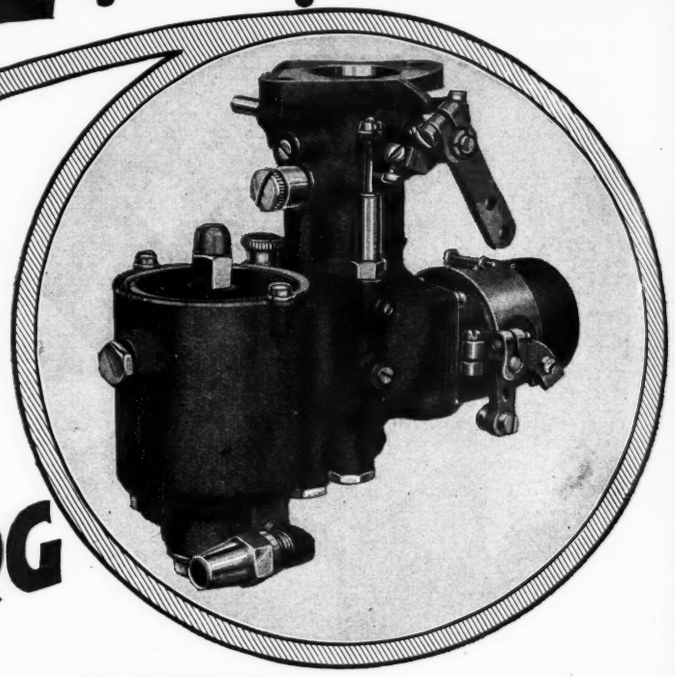
DEPENDABILITY REGULATION AUTOMOTIVE EQUIPMENT ASSN. SERVICE QUALITY

J. H. WILLIAMS & CO.

"The Wrench People"

New York BUFFALO Chicago

Sell Your Customers Carburetors Built Specially for their Cars



—It's the
"Get-Away"
—the Power
—the Speed
—the Economy
—the Amazing
Performance
of

STROMBERG SPECIAL CARBURETORS

That Make Them the Widest Known, Most Used, Most Satisfactory and Greatest Selling Carburetors

Stromberg Carburetors have performed the unusual on almost every make of car—they have really done the seemingly impossible. They are holders of many world's records for economy, speed and endurance.

The reason for this is the fact that Strombergs are built specially for every make of car. They produce instantly and constantly every ounce of energy any motor is capable of developing and with the least amount of fuel.

These facts are convincing. They are worth while knowing more about. Write today for them, and our liberal dealer proposition.



STROMBERG Electric WINDSHIELD WIPER

For safety and comfort every car should be equipped with a dependable windshield wiper. It's a big market for the right device. The Stromberg does more and does it better than any windshield wiper on the market—*it is right.*

Its two-speed, adjustable-pressure feature and its economy of current appeal to motorists. We guarantee it unreservedly. Write today and get full information on the full line of money-making

Stromberg Automotive Necessities

STROMBERG MOTOR DEVICES CO.

58-68 East 25th Street, Chicago

Direct factory Branches: 517 W. 57th St., New York City, N. Y.; 760 Commonwealth Ave., Boston, Mass.; 84-86 Hancock Ave. W., Detroit, Mich.; 1609 Hennepin Ave., Minneapolis, Minn.; 1809 McGee St., Kansas City, Mo.

B-24





Accurate Refacing of Valve Seats

is "dead easy" if you proceed as indicated in the illustrations to the left.

To assure a perfect job and prevent reamer from wobbling or traveling—especially if you find difficulty in centering the reamer over an uneven guide hole—use a pilot stem that fits snugly in guide hole. *Sioux Pilot Stems can be obtained in .001, .002, .003 and .004 oversize or undersize of any size, at same prices.*

The NEW Nicked Tooth Feature of Sioux 15° and 75° Valve Seat reamers lessens resistance of cutting points, eases up the work, produces a better finish, lengthens life of reamer and *absolutely eliminates chattering.*



Your Jobber Sells Them

ALBERTSON & CO. SIOUX CITY, IA.



IN COMFORT

Youth enjoys comfort, but Age demands it. To be forced off the seat by rough roads is nerve racking. And there's no need of it—no excuse even. Burd-Gilman Shock Absorbers were devised to prevent such discomfort—they do it perfectly. They pay their own way—not only in comfort added, but in repair bills saved.

Equip your own car with Burd-Gilmans—you'll recognize their superiority. It's a test that will convince you as it has convinced other dealers. Then take prospective purchasers out in your car—over the roughest streets. They'll see the point—they'll recognize comfort and its advantages—they'll understand the saving in repairs. It's a good test—and it's increasing Burd-Gilman sales tremendously.

Write for Literature, Prices, and Trade Discounts

BURD HIGH COMPRESSION RING COMPANY
Makers of the Famous Burd Piston Rings
ROCKFORD, ILLINOIS

BURD GILMAN SHOCK ABSORBERS

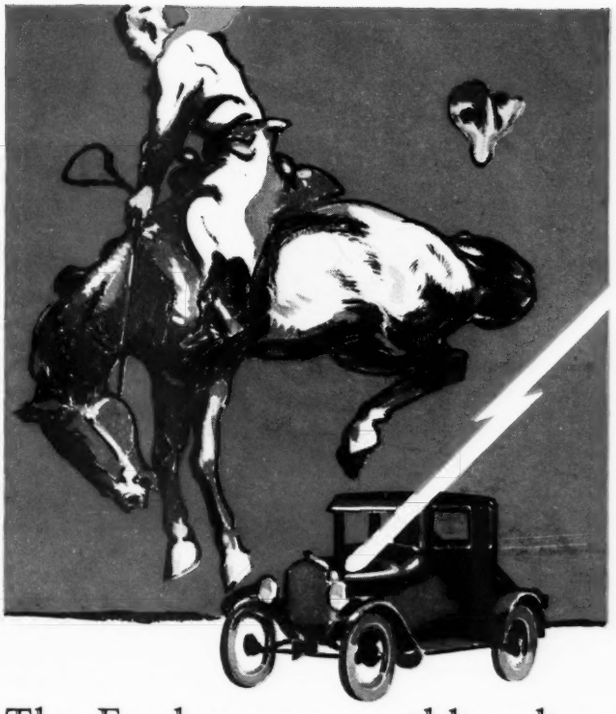
THE ORIGINAL SNUBBING DEVICE WITH THE STEEL CABLE

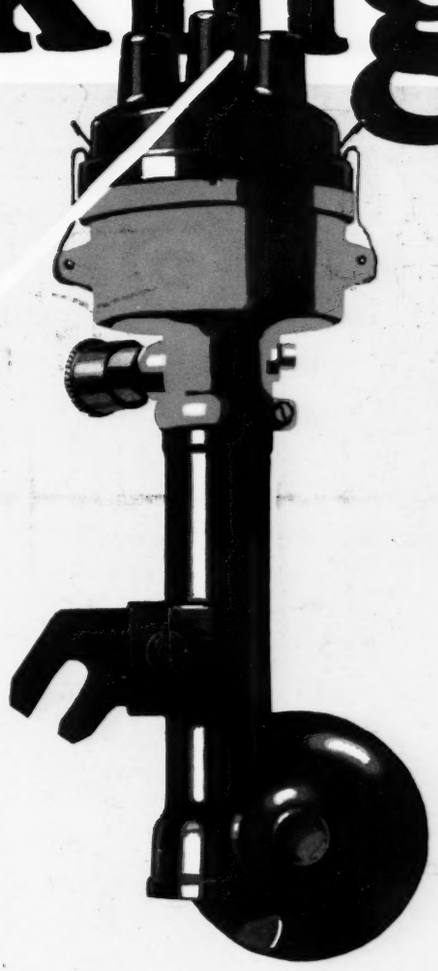


WHY BURD-GILMANS ARE BETTER:

1. Steel Cable will not break, stretch, kink, rust, or stick.
2. Steel Housing is weather-sealed. No water, ice, mud, dust nor grease can get into the working parts.
3. Simple screw driver adjustment adapts Burd-Gilmans to any tension desired for either balloon or high pressure tires.
4. Tension remains set. Will not work loose, requiring frequent adjustments.
5. Recoils from all depressions, large or small, continuous or at intervals, are instantly checked. No set spots where shock absorber will function and others where it will not. Spring control is constant.
6. No greasing nor oiling—ever.
7. Simple, trouble-proof construction. Very few moving parts.
8. Maximum riding comfort.
9. Easy to install.
10. No servicing required.
11. The best insurance against car depreciation and repair bills because vibration is reduced to a minimum
12. Guaranteed.

no bucking





The Ford runs smoothly when Bosch Ignition Type 600 is installed. Bucking and stalling in traffic is eliminated. When Bosch Equipped, the Ford will throttle down unbelievably low, yet it will get away like a flash. Every Ford owner wants this and the many other advantages of the Bosch Ignition Type 600. These prospective purchasers form a great market in your territory. There is profit for you in this market if you will stock and sell this extensively advertised and universally satisfactory Bosch product. Your accessory wholesaler or the nearest Bosch Branch can tell you the money making possibilities in this item.

Price $12.75

AMERICAN BOSCH MAGNETO CORP.
Main Office and Works: Springfield, Mass.
Branches: New York Chicago Detroit San Francisco

TYPE 600 BOSCH Ignition for FORDS



Attractive in appearance and impressive in its packing, the Bosch Spark Plug gets the attention of the customer. The longer life and the improved performance satisfies the customer and builds a repeat business. You make your full profit when you sell the Bosch Plug. A sample order will demonstrate the advantages of handling a quality spark plug.

Ford size 75c. Other sizes $1.00

AMERICAN BOSCH MAGNETO CORPORATION

Main Office and Works: Springfield, Massachusetts

Branches: New York Chicago Detroit San Francisco

Standard for Twenty-Five Years

AS THE YEARS roll by, only the efficient survive. The features of excellence that won renown 25 years ago for Brown-Lipe Gear transmissions, clutches and controls have been constantly improved. Today, as ever, Brown-Lipe Gear products embody the most advanced developments.

The owner of any automotive vehicle equipped with Brown-Lipe Gear units knows that his transmission, clutch and control are:

---dependable in operation under all conditions.

---durable beyond the life of the vehicle in which they are installed.

---quickly serviced through authorized distributors at all important centers.

Brown-Lipe Gear transmissions, clutches and controls are standard for motor vehicles ranging from 3-4 to 10-ton capacity.

We Invite Correspondence



BROWN-LIPE GEAR CO.

Now You Can Do It For a Penny a Patch



More profit VULCANIZING punctures! The new Shaler Hel-Dust Vulcanizer turns the trick. It does the job right. And it does it cheaper than any other way—cheaper even than you could stick on a temporary cold patch. After you read the facts below you won't want to wait for your jobber's salesman to call. You'll send his house your order and make MONEY fixing punctures right now—during the biggest touring season.

SHALER HEL-DUST

for Garages, Repair Shops, Fleet Owners

PRINCIPLE: The principle is the same as in the Shaler 5-Minute Vulcanizers and the device is manufactured under the Low and Miles Patents covering all solid fuel vulcanizers. But in the Hel-Dust Vulcanizer the vulcanizing pans or cups are made of heavy metal and are permanent instead of being thrown away after each job. Also the heat is supplied by Hel-Dust—a fuel that is powdered.

The big thing about this vulcanizer is the cheapness of the repairs. An ordinary repair with a Hel-Dust Vulcanizer costs about one cent. You can't beat that—even with cold patches!

The Shaler Hel-Dust Vulcanizer will repair anything from a pin-hole to a 6½-inch slit at *one setting*.

It is always ready to use instantly. It makes a long-cure repair [10 minutes]—a real vulcanizing job—exactly the same as if it were done on an expensive steam or electric tube plate—without waiting for the tube plate to heat up. Time for more repairs—more profit.

Handy and complete

Two clamps are furnished with each outfit. One is a large clamp for permanent attachment to a wall or workbench. The other is a smaller portable clamp, as shown in the illustration. Five vulcanizing cups fit a wide range of repairs. Stitcher and Rubber Roughener are included.

The rush is on. Order your Shaler Hel-Dust Vulcanizer from your jobber now—or goodness knows when you'll be able to get it. Only $6.00, subject to Trade Discount. Write for our catalog of the complete line of Shaler Tire Repair Equipment.

C. A. SHALER CO., WAUPUN, WIS.

World's Headquarters for Tire Repair Devices



There is also a motorists' model which retails at $1.50, including Hel-Dust and rubber enough for 15 repairs

SHALER

Rickenbacker

A • CAR • WORTHY • OF • ITS • NAME

We believe the Rickenbacker 8 to be the finest Eight-cylinder automobile on the market—regardless of price.

If you will drive this remarkable car just once, you too, will concede its all around superiority.

A Few of the many Rickenbacker Engineering Refinements

6

The finest 4-Wheel Brakes
Perfected Air Cleaner
Sturdy Double Depth Frame
Tandem Fly Wheels

Ball Bearing Steering
Oil Purifier
Low center of gravity
Cradle Springs

8

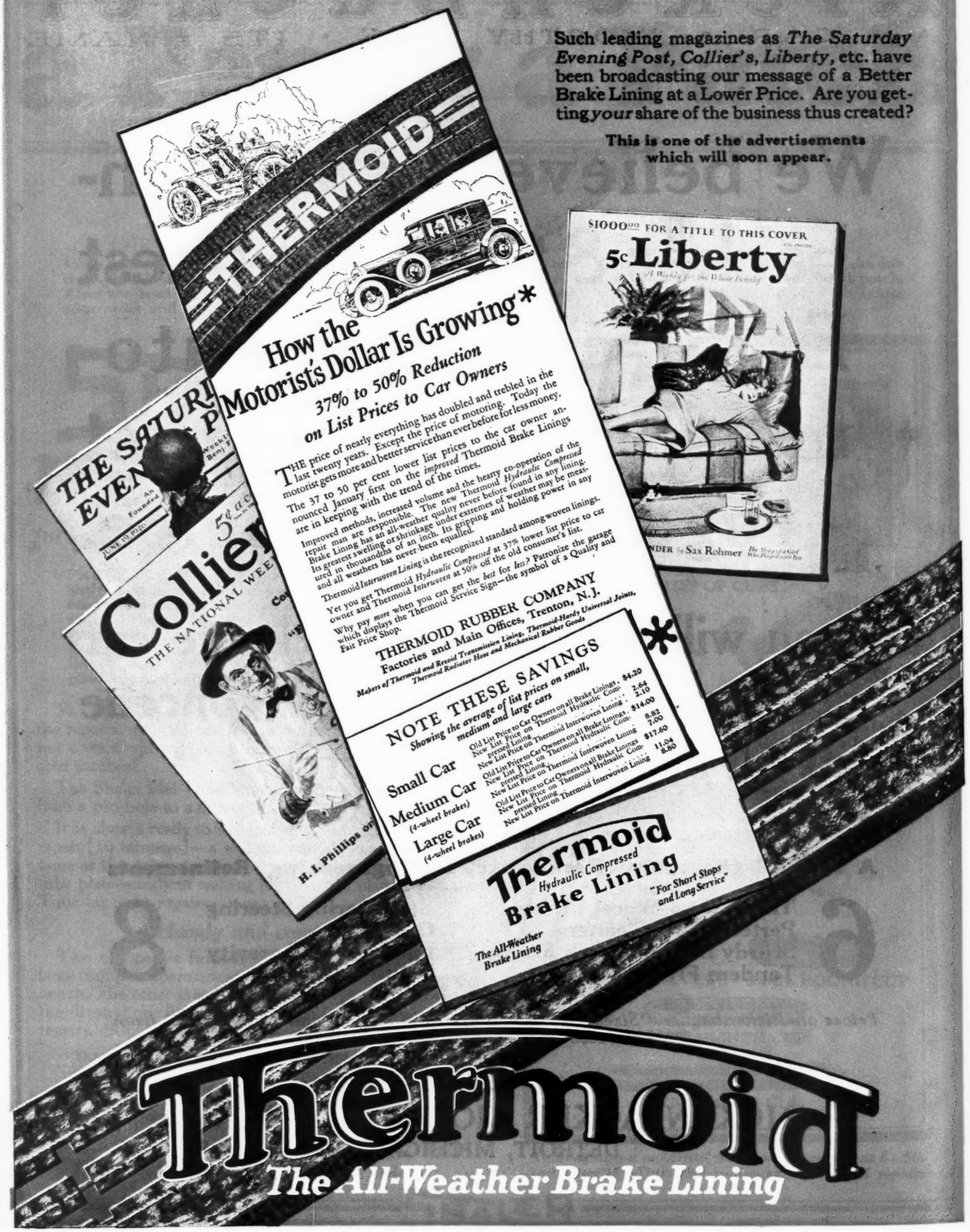
Prices on Rickenbacker "Sixes" range from $1495 to $2195 and on "Eights" from $2095 to $2595—f. o. b. factory, plus war tax.

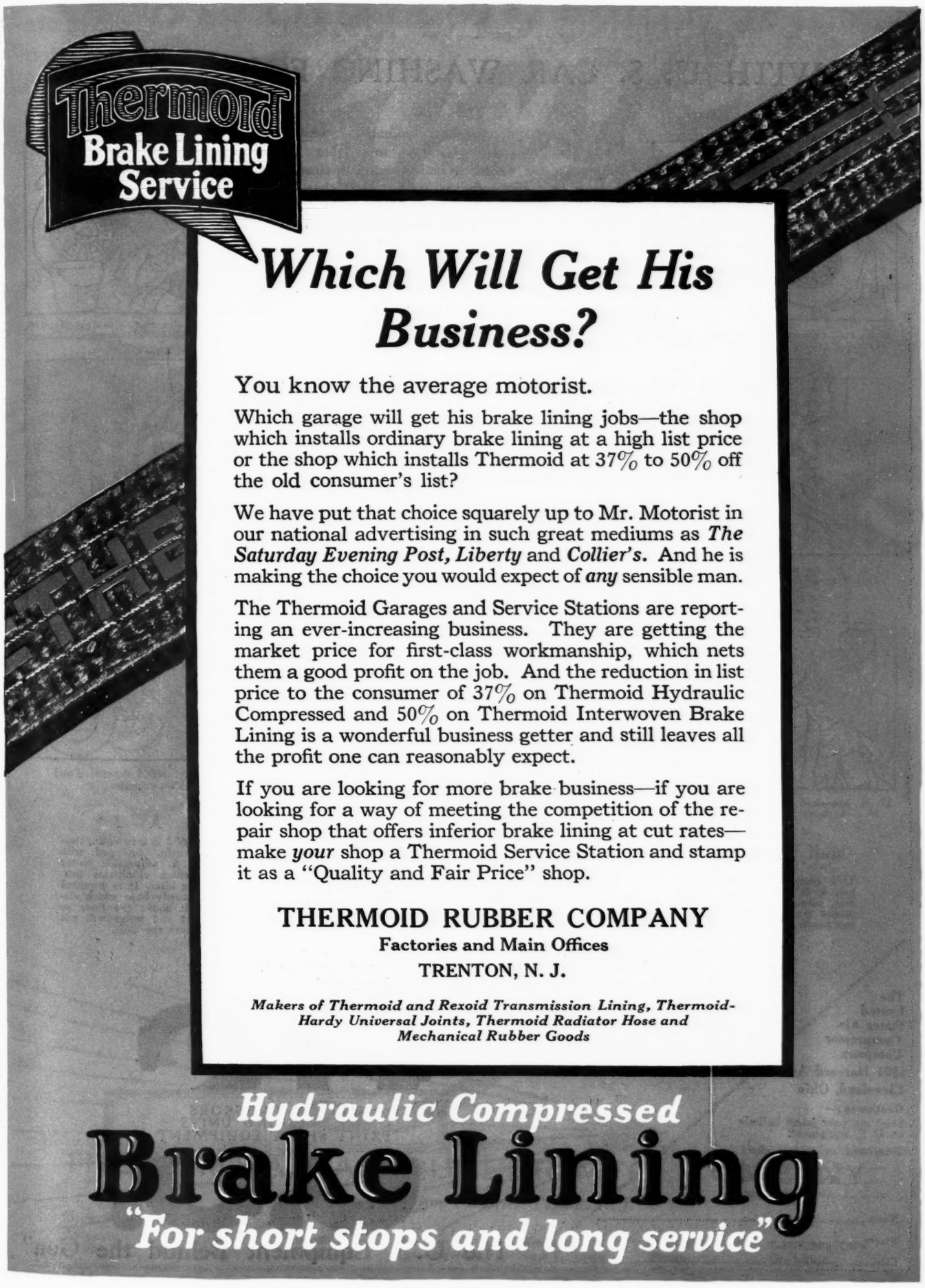
RICKENBACKER MOTOR COMPANY
DETROIT, MICHIGAN

Are You Getting Your Share?

Such leading magazines as *The Saturday Evening Post, Collier's, Liberty,* etc. have been broadcasting our message of a Better Brake Lining at a Lower Price. Are you getting *your* share of the business thus created?

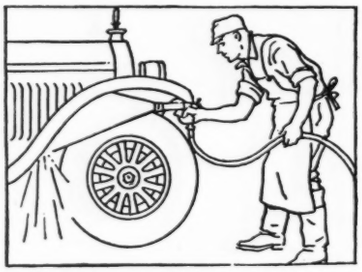
This is one of the advertisements which will soon appear.



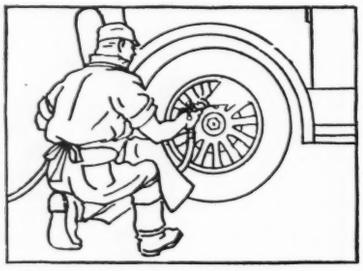

Thermoid
Brake Lining
Service
Which Will Get His Business?
You know the average motorist.
Which garage will get his brake lining jobs—the shop which installs ordinary brake lining at a high list price or the shop which installs Thermoid at 37% to 50% off the old consumer's list?
We have put that choice squarely up to Mr. Motorist in our national advertising in such great mediums as The Saturday Evening Post, Liberty and Collier's. And he is making the choice you would expect of any sensible man.
The Thermoid Garages and Service Stations are reporting an ever-increasing business. They are getting the market price for first-class workmanship, which nets them a good profit on the job. And the reduction in list price to the consumer of 37% on Thermoid Hydraulic Compressed and 50% on Thermoid Interwoven Brake Lining is a wonderful business getter and still leaves all the profit one can reasonably expect.
If you are looking for more brake business—if you are looking for a way of meeting the competition of the repair shop that offers inferior brake lining at cut rates—make your shop a Thermoid Service Station and stamp it as a "Quality and Fair Price" shop.
THERMOID RUBBER COMPANY
Factories and Main Offices
TRENTON, N. J.
Makers of Thermoid and Rexoid Transmission Lining, Thermoid-Hardy Universal Joints, Thermoid Radiator Hose and Mechanical Rubber Goods
Hydraulic Compressed
Brake Lining
"For short stops and long service"

WASHING CARS MADE EASY
WITH U. S. CAR WASHING EQUIPMENT

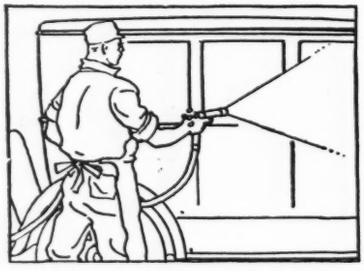
Improved U. S. Method



U. S. high pressure stream easily cleans dirt and grease from under fenders.



U. S. cleans dirt and grease from spokes and brake drums in a jiffy.



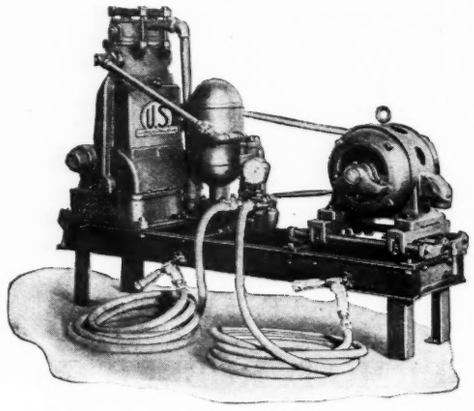
U. S. atomized mist soaks entire car without harm to finish.

U. S. equipment has eliminated 75% of the grief, expense and labor in washing a car or truck inasmuch as it cleans thoroughly underneath the fenders and chassis and by a simple turn of the handle of the valve on the U. S. pistol grip gun, a fine harmless atomized mist can be produced for soaking the dirt on the finish of the car without harm.

The U. S. pistol grip gun is operated with one hand from any angle. It is as easy as pointing your finger, and because it is short and compact it is ideal for cleaning hard-to-get-at places.

The powerful gusher on U. S. equipment has a pressure of 300 lbs. With this it is easy to remove all the grit from shackle bolts, spring leaves, brake drums, and parts which have always been impossible to clean thoroughly with the old brush and sponge method.

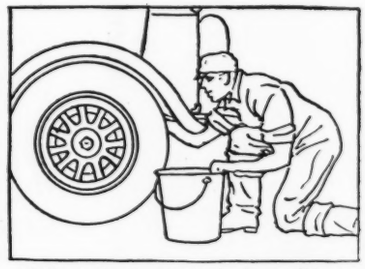
The installation and the operation of the U. S. equipment is so simple that it has acquired the reputation from operators everywhere as being "the one fool-proof car washing equipment." The high pressure pump is self-oiling; all moving parts continually running in oil, eliminates oil and grease cups; with all parts enclosed it is dust and dirt proof.



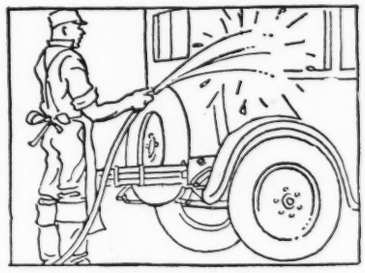
Old Method



Old brush cleaning scratches fender and bruises hand.



With spoke brush it is impossible to clean spokes and brake drums.



Old hose method expensive and inadequate.

AW-2

The AW-2 is a two-gun, two-man outfit, equipped with the U. S. adjustable motor base which eliminates belt-wearing idler. It is mounted on a sturdy base which elevates it above the floor so the dirt and water will not depreciate the unit.

Mail the coupon

This coupon will bring to you a folder showing how fast service and bigger profits are made with U. S. equipment.

The United States Air Compressor Company
5304 Harvard Avenue, Cleveland, Ohio

Manufacturers of U.S. Air Compressors; Complete Paint Spray Units and Car Washing Equipments.

The United States Air Compressor Company
5304 Harvard Ave.
Cleveland, Ohio

Gentlemen:—
Send me your latest bulletin on U. S. equipment.

Interested in (please check)
.....Car Washing Equipment
.....Paint Spray Units
.....Air Compressor

Name.....
Street.....
City.....

U.S.
AIR COMPRESSORS
CAR WASHING UNITS
PAINT SPRAY EQUIPMENT
U.S.

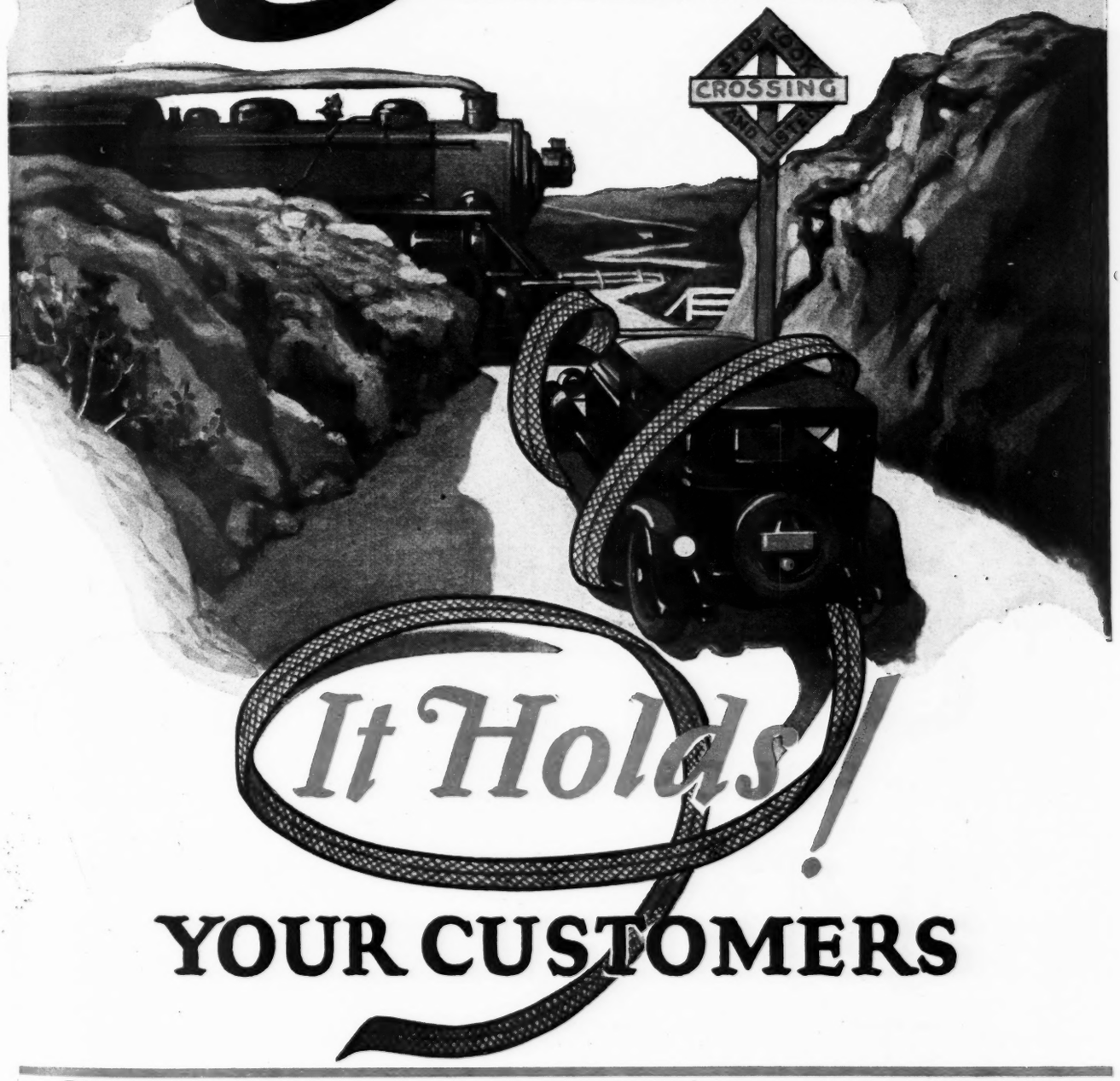
"The U. S. Equipment Behind the Gun"

Hycoe

SETS A NEW BRAKING STANDARD

REG. U.S. PAT. OFF.

BRAKE LINING



It Holds!

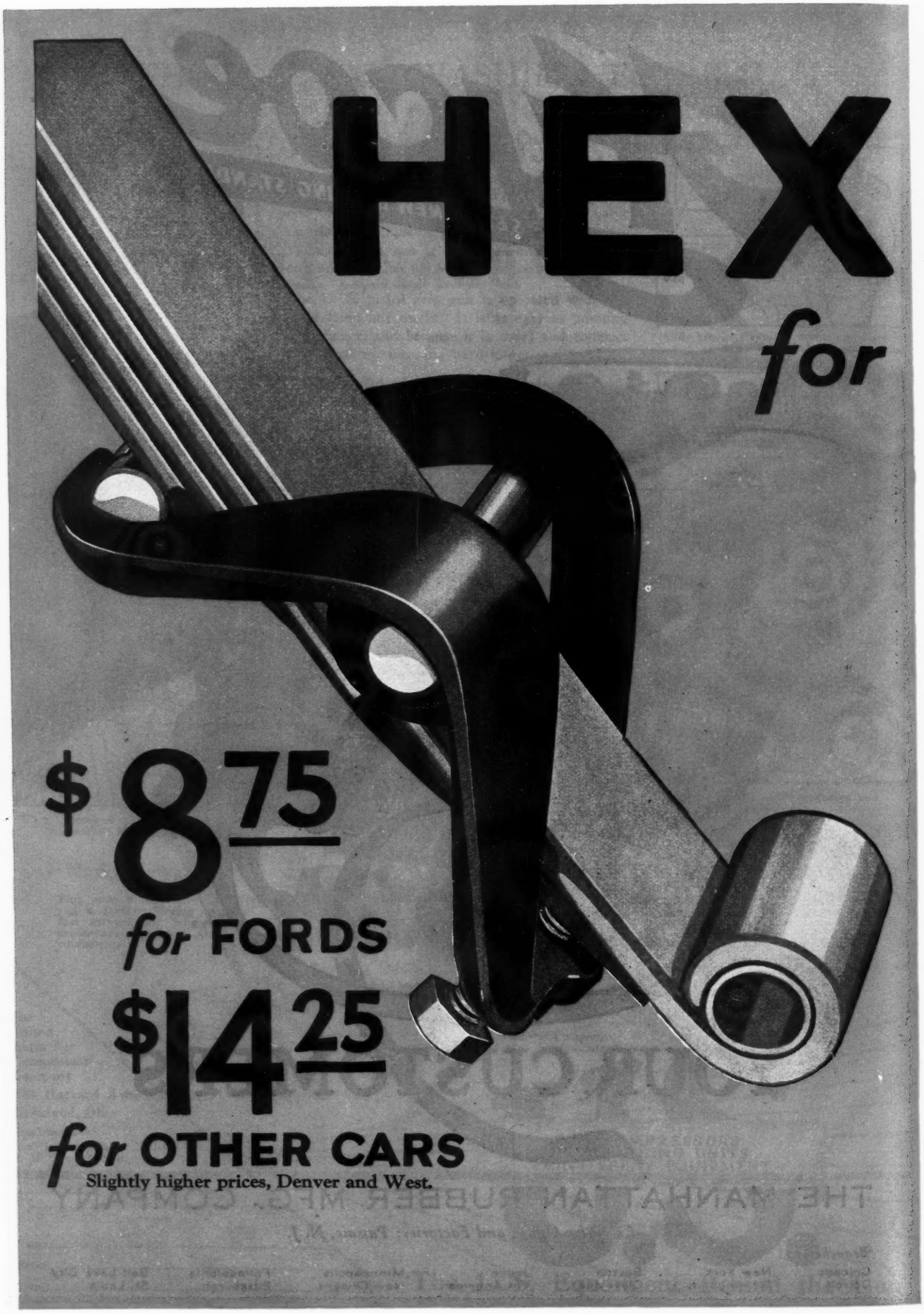
YOUR CUSTOMERS

THE MANHATTAN RUBBER MFG. COMPANY

Executive Offices and Factories: Passaic, N. J.

Branches:

Chicago, Detroit, New York, Birmingham, Boston, Cleveland, Joplin, Los Angeles, Minneapolis, New Orleans, Philadelphia, Pittsburgh, Salt Lake City, St. Louis


HEX
for
$8.75
for FORDS
$14.25
for OTHER CARS
Slightly higher prices, Denver and West.

HEXDEES
SPRING CONTROL

Low Cost Riding Comfort Insures High Dealer Profits

Prior to 1926, owners of cars in the "$1,000 or under" class—80% of all cars in use—were obliged to pay $40.00 and more for ordinary shock absorber equipment.

Now, for a small fraction of this cost, Hexdees will provide *big car* comfort for these owners, protect their cars against the rapid depreciation caused by rough roads, permit fast driving speeds over bad thoroughfares, and increase gasoline mileage by keeping the tires on the road.

You will find that Hexdees will practically sell themselves to 80 out of every 100 car owners. Volume profits will be the result.

Bear in mind that Hexdees attach to the springs and control their action. They were developed by Detroit Spring Engineers and are guaranteed by a manufacturer who is famous in the automotive industry.

Installed While Owner Waits

Almost anyone can install a complete set of Hexdees within thirty minutes. No holes to drill. No special fittings required.

A few distributing centers are open. Write for complete details.

DETROIT STEEL PRODUCTS COMPANY
2286 East Grand Boulevard, Detroit, Michigan

DEVELOPED BY THE MAKERS OF
DETROIT SPRINGS

FREE: Special Proposition...
to tire dealers. It's new! Write for full details... today!

CONCENTRATE *and* Collect...



A VITAL MESSAGE TO TIRE DEALERS DOING A VOLUME BUSINESS



NO question about it. Dealers who are handling EMPIRE TIRES *exclusively* are doing a handsome business . . . and they are free from the worries that come with the stocking of *many makes* instead of *ONE* make.

The larger your business on tires, the more reason for your being interested in a proposition that will make it still LARGER. We have the proposition. It appeals to big tire dealers who want to do a bigger business in a bigger way. Ask us to show you.

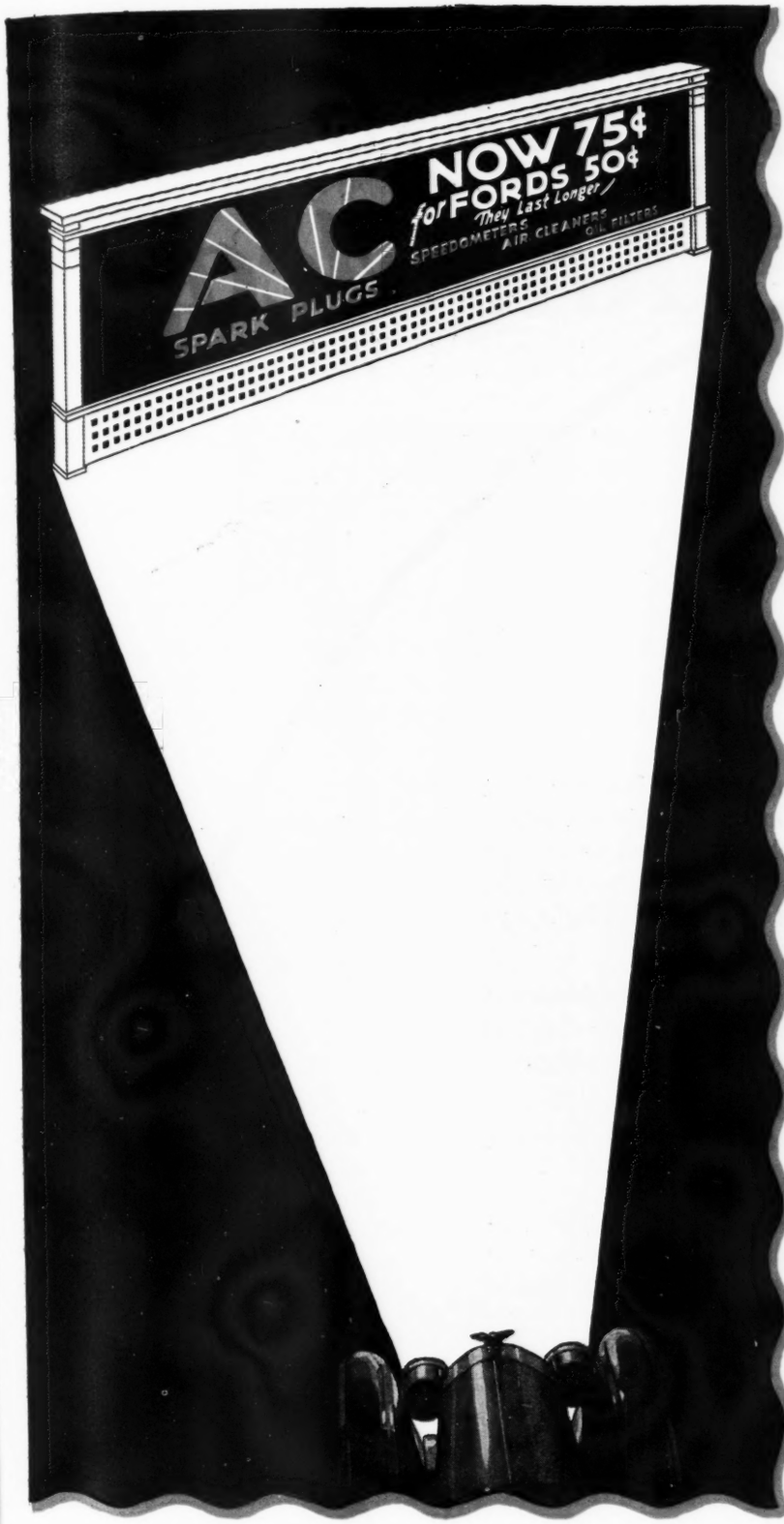


HERE'S *the* SECRET!

1. Concentration on one brand . . . one line.
2. Cash business only.
3. Simple but resultful local advertising.
4. Guaranteed quality—backed to the limit by us.

The big point is... that any large tire dealer, anywhere can apply these sound principles and get RESULTS—beginning right now. Send for our proposition free to tire dealers. It's new! Something you've never had before. It doesn't try to sell you a thing—except a sound, proven, money-making idea! You know tires—and tire buyers. Check up on the new EMPIRE, against your own judgment. You'll find it right; in weight, in price, in solid, built-in quality. Then write us. Just ask for our special sales proposition. You're dead sure to get at least one good sound money-making idea!

EMPIRE TIRE & RUBBER COMPANY
Trenton, New Jersey



Why AC Spark Plugs—

Have the biggest demand and the greatest sales possibility for the dealer.

Because—

The following cars and 124 others use them as original equipment.

BUICK
CADILLAC
CASE
CHANDLER
CHEVROLET
CHRYSLER
CLEVELAND
DAVIS
ESSEX
FLINT
HUDSON
JEWETT
KISSEL
MARMON
McFARLAN
NASH
OAKLAND
OLDSMOBILE
PAIGE
PONTIAC
STAR
STEARNS-KNIGHT
WILLS SAINTE CLAIRE

AC equipment business—today more than 50% of the entire car production—offers big sales possibilities because of the assured replacement demand from owners of AC-equipped cars.

Now Popularly Priced

AC or AC Carbon Proof, 75c
AC 1075 (for Fords) 50c

Heavily advertised through painted highway bulletins, national magazines, newspapers and dealer helps.

Likewise they are the most profitable for the dealer to sell.

AC Spark Plug Company
FLINT, *Michigan*

AC-SPHINX
Birmingham
ENGLAND

Makers of
AC Spark Plugs
AC Speedometers
AC Air Cleaners
AC Air Filters

AC-TITAN
Levallois-Perret
FRANCE

AC Speedometers

The AC Speedometer for Fords—now $10.00—is a full-sized speedometer, registering speed, total and trip mileage, the same previously sold at $15.00.

AC Air Cleaners

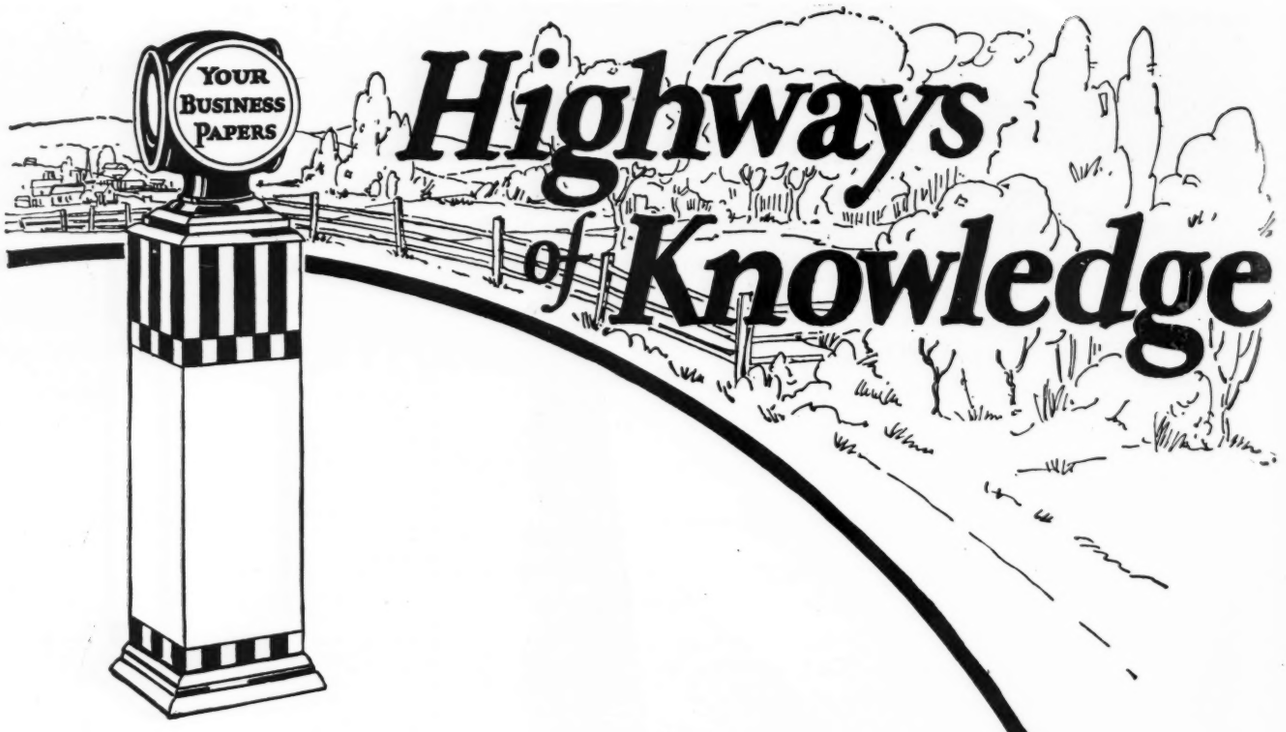
Prevent dust from entering the engine through the air intake of the carburetor.

Packed complete with all installation attachments—easily mounted and reasonably priced.

AC Oil Filters

Positive protection against engine wear.

Keeps the oil clean, making it unnecessary to change oil every 500 miles.



Highways of Knowledge

THAT the physical unity of our country is dependent on modern means of transportation is freely admitted. But the United States is not merely a physical union. It is a union of hearts and minds created by common ideals, habits, thoughts and purposes, which demands Highways of Knowledge.

In answer to this need we have the specialized business papers, each one published specifically for the field it covers—a journal such as the one you are reading.

It has the news, the trend of thought and practice, and carries advertisements, which, in reality, are a market place of industry.

A paper that is a member of the A.B.P., as this publication is, represents the best in publishing practice. It is pledged to "consider first the interests of the reader" and to "decline any advertisement which has a tendency to mislead or which does not conform to business integrity."

Make full use of this Highway of Knowledge. Read your A.B.P. paper regularly, you will find its editorial contents and advertisements interesting, helpful and profitable.

THE ASSOCIATED BUSINESS PAPERS, Inc.
Executive Offices: 220 West 42nd St., New York, N. Y.

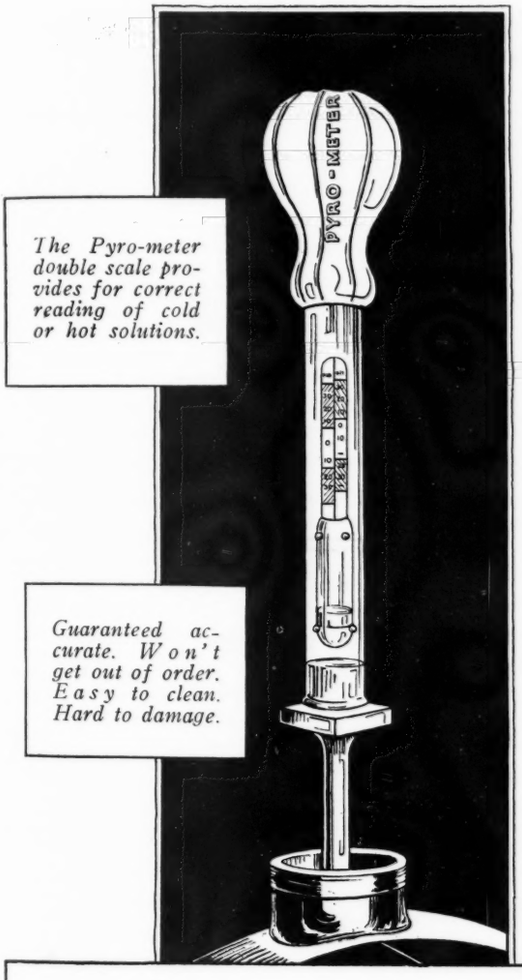
An Association of 116 qualified publications reaching 56 fields of trade and industry.

A.B.P.

MOTOR AGE is a member of The A. B. P.

No more "anti-freeze" guesswork

With the new, accurate Pryo-meter—*and the* Pyro Proportion Chart—*you can now give complete protection to any radiator—for any temperature.*



YOU don't "guess" how much oil—gas or air a car needs. Accurate gauges *tell you* at a glance.

Now, the new Pyro-meter shows at once the exact degree to which a radiator is proof against freezing. And from the Pyro Proportion Chart you can determine in a moment just how much Pyro to add for complete protection to any temperature.

This new scientific way to service Pyro, the *standard* anti-freeze, is quicker—simpler—and safer!

Timed advertising to back Pyro Sales this winter

To help you sell more Pyro during the coming cold season, striking, forceful advertising will be released in *your* locality when *your* papers are predicting freezing temperatures—when *your* market is livest.

That's when a suggestion from you will mean added Pyro sales—added Pyro profits.

Write to your jobber now for a Pyro-meter and a Pyro Proportion Chart (13″ x 19″).

U. S. INDUSTRIAL ALCOHOL CO.
110 East 42nd Street, New York

PYRO - PROPORTION CHART

AT THESE TEMPERATURES USE PYRO IN QUANTITIES SPECIFIED BELOW IN QUARTS	CAPACITY OF COOLING SYSTEMS IN QUARTS																	
	8	9	10	11	12	13	14	15	16	18	20	22	24	26	28	30	32
20° Above Zero	1¼	1¼	1½	1½	1¾	1¾	2	2	2¼	2½	2¾	3	3½	3¾	4	4	5
10° Above Zero	1¾	2	2¼	2½	2¾	3	3¼	3½	3¾	4¼	4½	5	5½	5¾	7	7	7
0° Zero	2¼	2½	2¾	3¼	3½	3¾	4	4¼	4½	5	5¾	6¼	7	7½	8	9	9
10° Below Zero	2¾	3	3½	3¾	4	4¼	4¾	5	5½	6	6¾	7½	8¼	8¾	10	10	11
20° Below Zero	3¼	3½	4	4½	4¾	5	5½	6	6½	7¼	8	8¾	9½	10½	11	12	13

DIRECTIONS: Ascertain capacity of cooling system, by reference to table in the back part of this directory. Drain radiator. Refer to chart and pour in the quantity of Pyro specified for your radiator, at the temperature for which you wish protection. Fill balance with water. To replenish, add equal parts of Pyro and water. Or for greater accuracy, use the Pyro-meter.

This simple chart provides for every water-cooled car on the market.

PYRO
BRAND
COMPLETELY DENATURED - 188 PROOF - FORMULA No. 5
ALCOHOL
U. S. INDUSTRIAL ALCOHOL CO.

Look for the blue Pyro label

Pyro is the standard anti-freeze

Did You Enjoy This Copy?

YOU can get one like it every week for only $3.00 a year—an average cost of a little less than six cents each.

Each and every man in the trade needs MOTOR AGE—needs the positive help it offers in the solution of daily problems and the valuable ideas it gathers for its readers.

Your competitor reads MOTOR AGE, and you need to read it also if you want to keep up with the leaders of the automotive field.

Here's How MOTOR AGE Will Help You

SERVICING—MOTOR AGE will show you how to make flat rates—How to sell Service—How to make customers permanent—How to organize a workshop—How to handle knotty problems—How to select Machinery—How to test electrical systems—How to make quick repairs—How to route shop work.

HIRING—How to get the right men—How to train them—How to pay them—How to get their co-operation—How to keep them enthusiastic.

BUYING—How to select an accessory stock—How to judge merchandise—How to get a fast turnover—How to avoid dead items.

SELLING—How other men do it—How to keep down overhead—How to advertise—How to make Salesmen produce—How to create a market—How to find prospects—How to make every sale pay—How to avoid losses—How to write letters that build business.

AND THEN - - - -

Whatever else you need to know to make your business run smoothly MOTOR AGE will tell you if you only ask—All personal inquiries receive personal attention from our editors. Every subscriber is encouraged to come to us with his problems, whether mechanical, legal, architectural or financial. Try us, and we will give you "Service you will like."

THE COUPON is here for your convenience. If you are already a subscriber, pass it on to some friend in the trade who is not. When he starts getting MOTOR AGE he'll appreciate the favor.

MOTOR AGE
5 South Wabash Avenue,
Chicago, Ill.

IMPORTANT — MOTOR AGE is published exclusively for the trade. Subscriptions are accepted only from those actively engaged in our field—so please don't forget to include your business card or letter head with this order.

Gentlemen: Enclosed find $3.00 to pay for a year's subscription to MOTOR AGE, including all special issues published during the life of my subscription.

Name .....

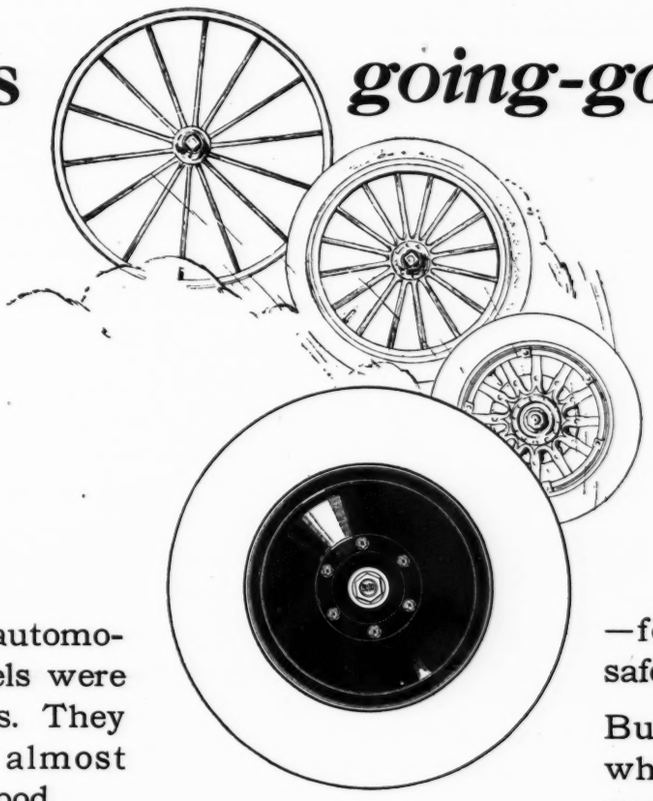
Street and Number .....

City ..... State .....

Firm Name .....

NOTE: **If you are already subscribing to MOTOR AGE, please hand this coupon to a dealer who is not. He'll become a better competitor from reading MOTOR AGE.**

Wood is *going-going*-gone!



THE first automobile wheels were buggy wheels. They were built almost entirely of wood.

As the speed and weight of the automobile increased, stronger wheels were needed. So wood was reinforced with steel.

The development of the automobile wheel has seen one wooden part after another replaced by steel —for strength and safety.

But the "wooden" wheel remains a compromise—the strength of steel joined by the weakness of wood.

There is one wheel that is not a compromise. The Budd-Michelin Wheel. It is *All-Steel.*

Why dally with the past, when the future is already here?

BUDD

WHEEL COMPANY

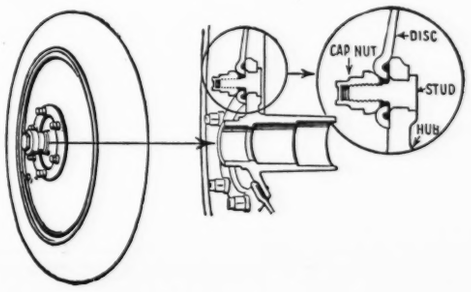
Detroit

Why BUDD-MICHELIN WHEELS *are* seen *but not* heard

. . . There can be no noise between disc and rim because they are permanently joined—practically one piece.

. . . The hub cannot cause noises because it is a one-piece forging.

. . . The diagram shows how the mounting of the disc on the hub prevents any play or noise. The disc does not touch the studs—the cap nuts carry it.



Tightening the cap nuts brings disc and hub together with a tension like the compressing of a spring. Prevents any chance of noise here.

. . . The holes in the disc cannot be worn egg shape by the studs. The studs cannot be sheared off by the disc. The cap nuts cannot work loose because they are in effect self-locking.

"THE PERFECTED OVERALLS"

PROTEXALL

One-Piece Garments
ARE 100% PROTECTION

PROTEXALLS protect the clothing against dirt and grease. The PROTEXALL label insures wearer against inferior material and workmanship.

MORE WEAR IN PROTEXALLS

They are made from closely woven materials carefully selected and tested for hard use and long wear. PROTEXALLS come in various patterns such as Blue, White, Khaki, Blue and White stripes and other fancy patterns that make uniforms of distinction.



"Walking Ads"

We can embroider your firm name or trade mark on the garments using fast color threads that stand out bold and distinctively.

IMMEDIATE LETTERING SERVICE

Sold Only Thru Automotive Jobbers

THE PROTEXALL COMPANY

Est. 1889

Abingdon, Illinois

BRANCHES

312 W. Second South, Salt Lake City, Utah

33 E. Mitchell St., Atlanta, Ga.

"THE PERFECTED OVERALLS"

"EXPERIENCE"

WHEN you go to an insurance man with an unusual risk that you want covered you are generally told, "I'll look up our experience on that and let you know what we can do." He then gets in touch with a central bureau where his own and perhaps other companies pool their information on such risks, and he finds out just how such cases have worked out in the past. With the facts in hand he is then prepared to handle the situation intelligently.

One of the reasons MOTOR AGE is published is to do the same thing for the automobile dealer that the central bureau does for the insurance man. It is to make available the experience of the trade—to show you how other men have met problems like your own, and how their methods have worked out.

Fortunately, there is an ample body of "experience" to be found in the automotive field. The only problem is that of placing it in the hands of the average dealer, and that is what MOTOR AGE is doing. Each week we present one or more articles showing just how some particular dealer met and overcame a typical situation and in our "Clearing House" is to be found the information given men who approached us with particular problems of which they wanted to get the experience of others.

You, too, can keep in touch with the experience of your trade by reading MOTOR AGE carefully each week. And when you need help in meeting some particular problem, don't hesitate to call on us.



To prospective purchasers of the new 740 Roll-A-Car, let me say that even though Roll-A-Car has dominated the garage jack field for the last five years, sales on the new 740 model have surpassed all previous records. The remarkable features incorporated in this jack have influenced thousands of dealers in selecting it as the jack best adapted to their needs. Therefore, if you are considering the purchase of a new garage jack, this statement should aid you in making your selection . . .

Willard Walker

President
Walker Manufacturing Co.
Racine, Wisconsin

Showing ease of making lift from side. Handle requires only a 12 inch stroke.

5 to 17 inches

the new

Walker Roll-a-Car

"Dependable in Service"

Industrial Bond Issues

WE are prepared to purchase entire bond issues of sizeable and sound American industrial and manufacturing companies.

Address our office
at
42 Broadway, New York City

HORNBLOWER & WEEKS

ESTABLISHED 1888

BOSTON NEW YORK CHICAGO CLEVELAND
DETROIT PROVIDENCE PORTLAND, ME. PITTSBURGH



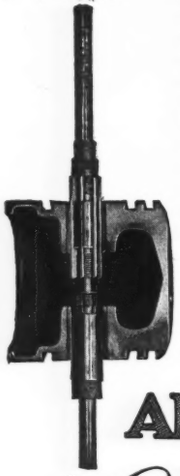
Don't Guess at Reamer Sizes!

Look them up on this FREE Wall Chart.



This new ready reference wall chart lists reamers by serial number and job against make, year and model of car. Eliminates all need of guessing about fractional sizes and instantly shows you the right reamer for each job.

New 64-page catalog lists reamers and serial numbers same as chart but includes all tools made by this twenty-year-old manufacturer of quality tools. You need one or the other of these time savers. Serial numbering system makes ordering easier too.



Write today for FREE copy of ready reference chart, catalog and names of jobbers in your territory equipped to give serial-number delivery service.

A-P CO.

ALVORD-POLK TOOL CO.
Millersburg, Pa.

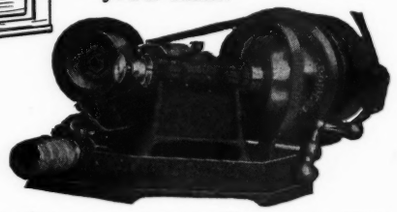
ALVORD-POLK

Tools for Repair Shops

Let the Time Clock Pay for this Valve Refacer



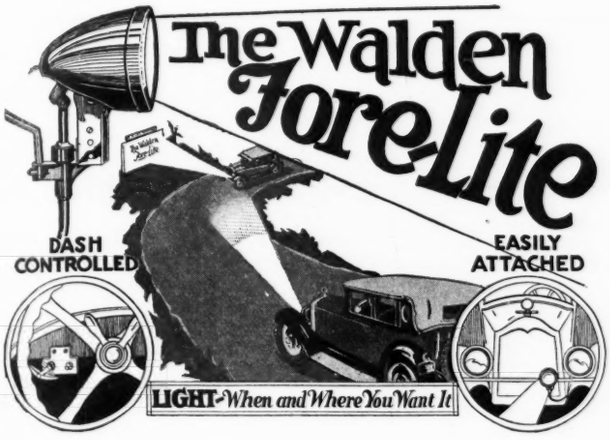
It's your employees' time that tells how much profit you can make in value refacing. The more you cut down the labor on each job, the more you'll make.



That's why garage owners all over the country report unusual profits from operating a Crowe Cup Wheel Valve Refacer. In 30 seconds it does the work that ordinarily requires an hour. And it increases the efficiency of every valve regrinding job 100%! Also, its installation cost is just about half what you'd expect to pay for this simply constructed, long lasting machine. It has fewer parts subject to wear than any other machine on the market.

Now successfully used for more than three years in earning bigger profits for up-to-date garages. Let us send you a machine for 10-day trial in your own shop. If you are not fully pleased, machine may be returned and your money refunded. Easy payment plan enables you to purchase with money earned through increased profits. Write, today, for full particulars.

Lisle Manufacturing Company
Box C
Clarinda, Iowa



"It prevented my missing an important detour"

The driver who made this statement in praise of his WALDEN Fore-Lite saved himself many miles of driving on an Indiana detour, when he was able to spot a guiding arrow that all the cars ahead of him had failed to note.

THE WALDEN Fore-Lite is truly a driving light.

Owners Have Reasons for Buying . . *and They Buy*

Car owners know why they want WALDEN Fore-Lites: They want them to provide a clear illumination on the road and in the ditch in country driving, to make road signs as readable at night as in the daytime, to illuminate strange or dangerous curves, to displace bright headlights in conjunction with dims.

Mounted low, between the headlamps, and operated from the instrument board, the WALDEN Fore-Lite is the one light that will do these things. **That is why car owners buy.**

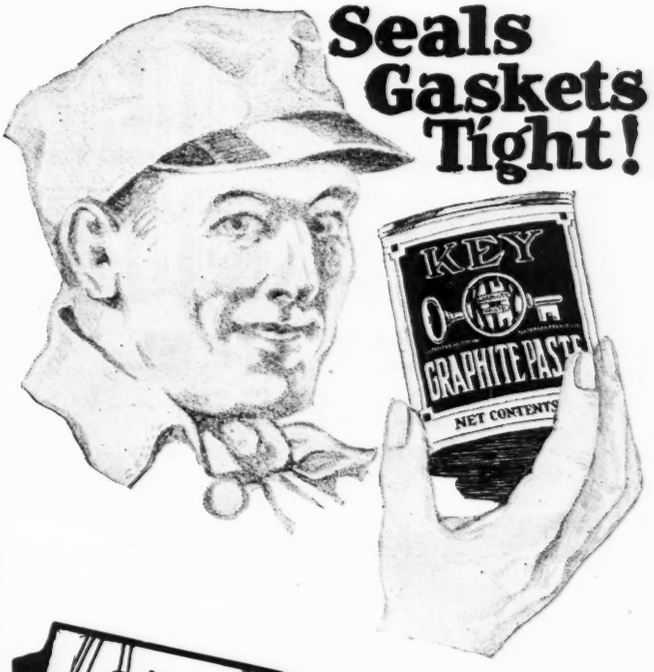
You Can Clean Up with Walden in Your Territory

The WALDEN price is $18.50—a price the trade has found to be right, and that owners agree to. Sales that result pay a profit worth while, and sales are going fast. Every WALDEN Fore-Lite sells another. Start them in your territory and clean up.

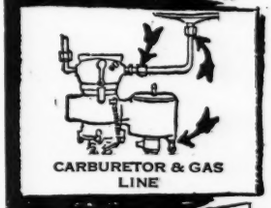
Sold in Chicago through dealers direct. Elsewhere through exclusive distributors.

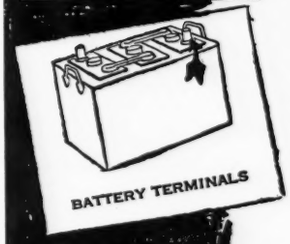
Write

THE WALDEN COMPANY
2017 S. Michigan Ave. Chicago











YOU never hear anything more from leaky gaskets—once they're sealed with Key Graphite Paste. They're sealed to stay! And the job is done so quickly — almost before you know it. Like an extra mechanic in the shop.

A garage man in Pennsylvania repeats the experience of many others in saying: "No one will want to go back to using shellac after trying Key Graphite Paste."

A few of the many uses of Key Graphite Paste: Seals all gaskets; seals all screw threads; prevents rust and corrosion; eliminates all body and chassis friction; prevents oil and gas leaks.

Send For Your Sample

That's the only way to test it for yourself. See how it expands under heat. Notice how unaffected it is by oil, gasoline or acids. And you'll never find it corroding or oxidizing in the joints. Send for your sample today.

Distributors in All Principal Cities

KEY BOILER EQUIPMENT CO.
East St. Louis, Ill.

KEY GRAPHITE PASTE

Key Boiler Equipment Co., MA 7-15-26
27th & McCasland Ave., East St. Louis, Ill.
I am enclosing ten cents in stamps. Please send me sample can of Key Graphite Paste and free descriptive leaflet on where and how to use it.

Name .....
Firm .....
Address .....
.....

TUTHILL TITANIC

ALLOY STEEL SPRINGS



Just Listen to This!

"Funny thing happened this morning. I took my Ford to an Authorized Ford Dealer. When the service man got down to look at the bushings he turned his flash-light on my front spring and said, 'Say, where did you get that old style tapered leaf spring? They don't make 'em like that any more.'

"I had to laugh, you see it's a Tuthill Titanic with a hump center and tapered leaves.

"I told the service man what it was and he said, 'Lately a lot of Ford owners have told me about these Tuthill Titanic Springs and they all say they are easier riding and they can't break 'em. Guess I'll get a set for my car.' "

K. Potter, Chicago, Ill.

We aren't the only ones who know Tuthill Titanics are the finest springs money can buy.

Write Today for the Tuthill Service Station Plan

TUTHILL SPRING COMPANY
DEPT. 779 · 760 POLK STREET · CHICAGO, ILL.

ESTABLISHED 1880



10 DAY Trial Offer

Send us your request on your stationery for one G. B. Impeller as sample. Try it for 10 days. If it is not all we claim return it to us at our expense. If you decide to keep it we will bill you for it less regular dealers discount.

A FAN FOR FORDS

Guaranteed to prevent overheating

Cools the engine far better than the regular fan combined with a water pump.

No additional power required to drive it.
No extra stress on the fan belt.

No trouble to install, simply remove the four screws that hold the Ford fan and put on the G. B. Impeller. Less than five minutes will do it.

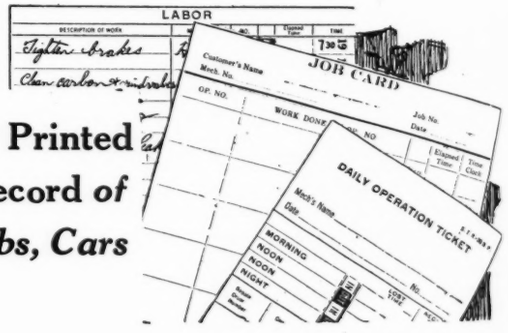
Eliminates water pump troubles, as pump is unnecessary. Has 24 blades. Has nothing to get out of order—one single steel stamping. Develops high Static Pressure necessary to draw the air through the radiator and rush it out of the hood. The regular fan does not furnish any Static Pressure. G. B. Impeller is designed with complete understanding of all conditions met in the cooling of an automobile radiator.

Retails at $3.00. Long discounts to you. Write today.

G. B. IMPELLER

De Bothezat Impeller Co., Inc.

1922 Park Avenue New York City



Keeps a Printed Time Record of *Men, Jobs, Cars*

Install a Simplex Time System, and replace guesswork with a printed card record for each man, job and car in the place. Keeps time on shop-jobs and employees and a printed in-and-out record of every car. We design and print forms for your particular problem. Garages everywhere, including U. S. Post-offices are using the Simplex System. Full information and prices upon request. Simplex Time Recorder Company, Gardner, Mass.



Branches in 10 principal cities.

Simplex **TIME SYSTEMS**

The ONLY Auto Towline That Is:

(1) Made of the famous, nationally advertised Yellow Strand Wire Rope.

(2) Equipped with Patented Snap Hooks that are the last word in simplicity and efficiency.

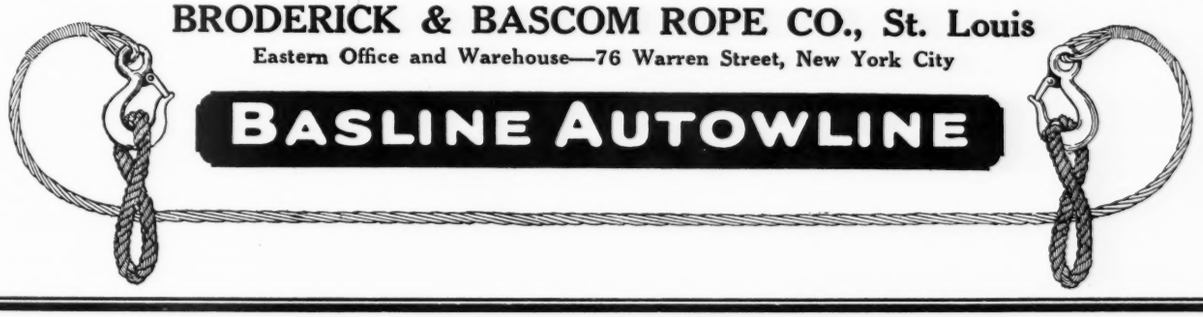
(3) Well established because it has been backed by years of national advertising.

(4) Strong enough to stand a 6000 lb. pull and yet weighs only 4½ lbs. and coils neatly under a seat cushion.

BASLINE AUTOWLINE pays Jobbers and Dealers a good profit, too. Write for Price List and descriptive literature.

BRODERICK & BASCOM ROPE CO., St. Louis

Eastern Office and Warehouse—76 Warren Street, New York City

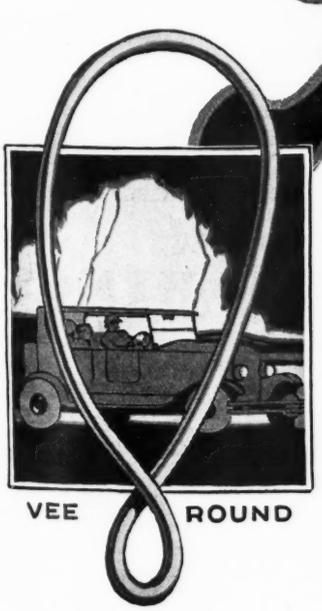


J342

Rie Nie

Trade Mark Reg.

FAN BELTS



Fits any Grooved Pulley, wedging itself tightly and firmly into the groove regardless of the angle of pitch. Their construction insures reliable service, always. It is oil, heat and water-proof, with a sureness of grip that guarantees dependable performance. Self-adjusting! Fewer sizes to carry, insuring quicker turnover.

Selling and Serving Consistently

Rie Nie Fan Belts serve consistently because of the accuracy of their manufacture and the high quality materials used. They sell consistently because dealers and motorists everywhere know how durable they are, and how well they stand up. Rie Nie fan belts are so reasonably priced and give the dealer such a substantial margin of profit that it pays to specialize in them.

Encourage your customers to "carry a spare."

DURKEE-ATWOOD CO.
MINNEAPOLIS, MINN. U.S.A.

Manufacturers of
Quality Automotive Products that SELL since 1910



Is made for Regular or Crowned Pulleys—and will exactly fit the car for which it is designed. Fabric is cut on bias. Herculean strength! Vulcanized in a special cover jacket which prevents ply separation. Durable! Sure Grip! No slipping. A true Rie Nie Product—in every sense of the word.

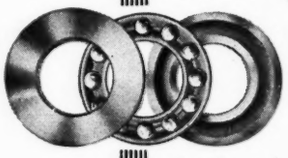


Write Us About The Sales Opportunity in GRIPPERS

Here is an entirely new product—an emergency GRIPPER that recovers traction and brings cars and trucks onto firm road under their own power when they are stuck. Generous profits are included for dealers—and the line moves fast. Get complete details now.

Gripper Mfg. Company

536 Lake Shore Drive, Chicago, Ill.



Prompt Quotations on Bearing Requirements

Send your blueprints and we will forward you in short order quotations on your requirements for Angular Contact Thrust Bearings, Angular Contact Radial Bearings, and Thrust Ball Bearings of all types.

Inquiries are always appreciated.

THE BEARINGS COMPANY OF AMERICA

LANCASTER, PENNA. Western Sales Office, 1012 Ford Bldg., Detroit, Mich.

MORRISON Automatic Double Range Worm Drive JACKS



Special model for Balloons

Can't Slip or Tilt

Flexible steel "Sure Hold" cap prevents dangerous slipping. Long folding handle (36 to 72 in.) operates from standing position. Gets under overhanging bodies. Easy to work. Few turns and it's up. Built in 11 sizes for all service requirements up to 8 tons. Furnished as standard equipment on fine passenger cars, trucks, buses and Fire Apparatus for past 4 years. The Jack for YOUR shop. Write for sample for test.

THE WOODS ENGINEERING CO., Alliance, Ohio
General Sales Representatives for Canada, carrying branch warehouse stock:
Colonial Traders, Ltd., Chatham, Ontario, Canada.

Faith WING LOCKING CAP

MOTOR SAFETY SIGNALS MADE FOR ALL CARS

THE LATEST, BEST AND LOWEST PRICED ON THE MARKET

JUNIOR SIGNAL **1.50**

Ask your jobber **2.00**



Made in Junior Model G. Ford, Gray, Chevrolet, Essex, Oldsmobile, Star, Overland Maxwell, Willys Knight, Chrysler, Dodge, Studebaker, Cleveland

Faith Mfg. Co.
2539 N. Ashland Ave.
Chicago, Ill.

NEXT WEEK

—is the time to read next week's issue of MOTOR AGE, as you are reading this week's issue this week.

MOTOR AGE
5 So. Wabash Ave. Chicago, Ill.

TIMKEN *Tapered* ROLLER BEARINGS

FOLLETT'S NEW MODEL TIME STAMP

accounts for every labor minute



Learn the interesting details from our descriptive data.

Prints the year, month, day, hour, minute, A.M. or P.M. at the exact moment the plunger is pressed—like this, for example:

NOV 19 1920 4 31 PM

Tells when a job is started—and when it is finished. There can be no dispute over the time charge.

Absolutely automatic — except for winding. Every machine guaranteed.

Follett Time Recording Co., 217 High Street, Newark, N. J.

"Established Since 1904"

WATERVLIET SPIRAL EXPANSION HAND REAMER

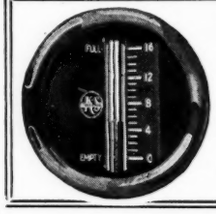


Spiral flute convenience; Watervliet quality,—at a moderate price.

Will Not Chatter

Ask your jobber or write for literature

Watervliet Tool Co., Inc.
1037 Broadway, Albany, N. Y.
New York: 1780 Broadway; Kansas City: 711 Mutual Bldg.; San Francisco: 661 Turk St.



The K-S GASOLINE Telegage

A gasoline gauge on the Dash. Note our half-page advertisement in this week's issue Saturday Evening Post. Write for description and proposition to the trade.

KING-SEELEY CORPORATION
298 Second Street Ann Arbor, Mich.
Chicago Branch, 2450 Michigan Boulevard

DEALERS — GARAGEMEN

USED CAR DEALERS,
CAR WRECKERS,
AUTO SUPPLY STORES,
FLEET OWNERS,
REPAIR SHOPS—



GET OUR BIG 80-PAGE CATALOG

Everything listed at cut prices—less than regular wholesale. Quantity purchases make our low prices possible. Nationally advertised products. All new except where specified—Timken Axles and Bearings—Standard Timing Gears—Brown-Lipe Transmissions—Pistons—Rings—Hayes and Firestone Wheels—Rims—Tires—Tubes—also a complete line of accessories.

Write for our big new 80-page Wholesale Catalog today!

Warshawsky & Company

World's Largest Replacement Parts House

1915-35 So. State St., Dept. MA-7, Chicago, Ill.

Trustee's Sale in Bankruptcy

SAMUEL T. FREEMAN & CO. AUCTION PHILA. & BOSTON

Est. Northway Motors Corp., Bkpt. No. 34994

SAMUEL T. FREEMAN & CO. AUCTION PHILA. & BOSTON

VALUABLE MANUFACTURING REALTY
3600 MOTORS AND SERVICE RIGHTS

FORMERLY OF

THE RUTENBER MOTOR

MADE IN AMERICA

Now the Marion Plant of The Northway Motors Corporation

Marion, Indiana

FRIDAY, JULY 23, 1926, AT 11 A. M.

On the Premises

REAL ESTATE—Manufacturing property approximately 410x396 feet with railroad siding. Improved with six manufacturing, storage and office buildings.

MACHINERY AND EQUIPMENT—To be sold in Piecemeal Lots only, includes 3600 new Rutenber motors as well as a large quantity of motor parts; service rights including patterns, dies, jigs and fixtures; service parts; large quantity of tool room equipment, small tools, machinery, office furniture, etc.

By Order of FRANK V. NOYES, Esq., Trustee

MASON H. STONE, Esq., 27 State Street, Boston, Mass., Attorney for Trustee

Descriptive Illustrated Catalogue Upon Application to

SAMUEL T. FREEMAN & CO., *Auctioneers*

1808-10 Chestnut St., Philadelphia 80 Federal St. Boston

KESTER *Self Fluxing* SOLDER

Simple, Safe and Sure

Requires Only Heat



KESTER *Acid Core* SOLDER

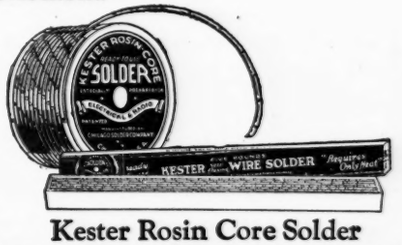
For general soldering and heavier electrical work. Self Fluxing—"Requires Only Heat." Standard size No. 3 about 1/8 inch in diameter, runs about 30 feet per pound. Packed on 1, 5 and 10 pound spools. Special gauges also available.



Kester Metal Mender

The Household Solder

Here is the small package of Acid Core Solder. So simple anybody can use it. Ten cans about 1/4 pound each are packed per carton. Ten cartons (100 cans) to the case lot.



Kester Rosin Core Solder

For very delicate electrical and radio work. Contains highest quality metals and rosin flux. Standard size about 3/32 inch in diameter, runs about 50 feet per pound. Packed on 1, 5 and 10 pound spools and 18 inch sticks in 5 pound boxes. Special gauges also available.



Kester Radio Solder

(Rosin Core)

Safe, Sure and Simple—approved by radio engineers. Harmless to the most delicate parts. Absolutely non-corrosive flux makes low-loss joints. Ten cans about 1/4 pound each per carton. Ten cartons (100 cans) to the case lot.

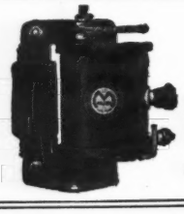
GENUINE SOLDER

CHICAGO SOLDER COMPANY

4203 Wrightwood Avenue, Chicago, U. S. A.

Originators and world's largest manufacturers of Self Fluxing Solder

Your Jobber Can Supply You



Mallory
Ignition Coil

Has two primary windings instead of one. Gives a hotter spark, makes easier starting, gives more power, quicker pickup and more mileage. Try it on a sluggish motor. Write for full particulars.

The Mallory Electric Corporation, Toledo, Ohio.

ELIMINATES SLOW LEAKS
—from rusted clincher rims. An endless piece of specially compounded rubber. Snaps on rim like rubber band. Fits snug all around. Prevents tube touching rusted rim. One size fits all clincher rims. Write for discounts.
LAENG MFG. CO., 3722 Lorain Ave., Cleveland, O.
25 Beaver St., New York City

Laeng Clincher Rim Flap



Johns-Manville
ASBESTOS BRAKE LINING

Simplicity
REBORER AND GRINDER
A big money-maker in any automobile repair shop or garage. Ask for free demonstration in your own shop.
Simplicity Manufacturing Company
Port Washington, Wisconsin



QUALITY—PROFIT—TURNOVER
American Hammered Piston Rings
American Hammered Piston Ring Company
Baltimore, Maryland



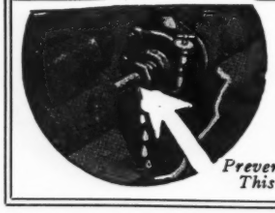
Prest-O-Lite
Automobile and Radio Batteries
Write for our interesting dealer proposition. It means bigger profits for you.
The Prest-O-Lite Co., Inc., Indianapolis, Ind.

free write for your copy

The Book "AIR PROFITS"
Shows how to get more work out of an air compressor. How to use compressed air for many pay jobs.

BRUNNER MFG. CO.
UTICA NEW YORK
BRUNNER AIR COMPRESSORS

Kawneer
SOLID COPPER
STORE FRONTS
Write for Special Book Garage Front
THE KAWNEER CO., 3724 Front St., Niles, Mich.



Prevent This

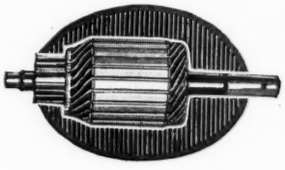
Stops Pump Shaft Leaks Immediately and Permanently
Conneaut Plastic Metallic Packing molds in the fingers to fit stuffing-boxes of any size or shape. It is a repair for the worn shaft and loose bushing. At your jobbers; if not write us.
1 lb. can.....$1.75 per pound
5 lb. can.....$1.60 per pound
THE CONNEAUT PACKING CO.
Conneaut, Ohio

The MASTER SO-LO Jack

So-Lo Jack Co., Inc.
Attleboro Mass.
Sales Office
108 Massachusetts Ave.
Boston Mass.

Branches in:
New York
Chicago
Philadelphia
Boston
San Francisco

BUNTING
PHOSPHOR BRONZE
BUSHING BEARINGS
Put Bunting Quality into all Replacements
The Bunting Brass & Bronze Co., Toledo, Ohio



FREDERICKS
Rewinding Service
New Rewind Profits—See announcement every 4th week. Write now for price list. The H. M. Fredericks Co., Lock Haven, Pa.

ZENITH
CARBURETOR
More Power Less Fuel
Zenith - Detroit Corporation, Detroit, Mich.

TASCO
Gas Gauge for FORD CHEVROLET and OVERLAND



Sells Quick at $1.25 Retail
THE AKRON-SELLE CO.
Akron, Ohio

The Original **Bosch**



Franchise details for selling ORIGINAL BOSCH Automotive Equipment will be sent to any Distributor, Dealer or Service Station on request.
ROBERT BOSCH MAGNETO CO., Inc.
109 West 64th Street New York, N. Y.

ORIGINAL BOSCH units bear the full name, Robert Bosch, and the trade mark shown at left. These are the identifications of Bosch quality—famous since 1887.

Gemco BUMPERS



Tempered and nickel plated by our own exclusive process. Maximum strength, lasting beauty of finish. Write for catalog.
760 S. Pierce St. Milwaukee, Wis.

LARKIN THURO
THE LARKIN AUTOMOTIVE PARTS CO.
DAYTON, OHIO, U.S.A.

Let us send our profit-boosting plan. It's Free.

BOLTS THE BLUE B/P LINE PRINT BUSHINGS
"Made to Blue Print"
"B/P" guarantees to the Replacement Trade the same high standard of Quality and Accuracy demanded by the car manufacturer. "B/P"
The Fostoria Screw Co., Fostoria, Ohio

"As Silent as a Shadow"
Quincy Compressors
Quincy, Illinois
J-538

KISSEL
CUSTOM BUILT
Kissel Motor Car Co., Hartford, Wis.

WESCO TIRE CHAINS
29 x 4.40 Balloon
WESTERN CHAIN COMPANY
Here's the Way to Sell Tire Chains
Let the package they come in display them. By making them easy to buy, you automatically make them easy to sell. Dealers like the WESCO carton. Write.
Western Chain Company
Chicago, U. S. A.

Neutrowound

SUPER-POWER RADIO
Write for Exclusive Territory proposition to Sub-Distributors.
Neutrowound Radio Mfg. Co.
Homewood, Ill.
Radio Division
Advance Automobile Accessories Corp.

WESTINGHOUSE AIR SPRINGS
The finest known method of shock absorption
THE WESTINGHOUSE AIR SPRING CO.
Factory and General Offices, New Haven, Conn.
New York Boston Philadelphia Cleveland
Chicago Atlanta Los Angeles

UNITED STATES Portable Electric DRILLS
Built by the oldest maker of Portable Electric Drills in the World.
Ask for Catalog 108 THE UNITED STATES ELECTRICAL TOOL CO.
Cincinnati, Ohio, U. S. A.


Guaranteed Unbreakable
Gear Shift Ball
Made in all combinations from 11 basic colors. Packed 18 in attractive counter display box. Counter display cards also furnished. Complete with all necessary bushings. 2 in. in diameter. Highly polished. Fast seller. Price $1.25. Write for details and catalog of entire line of 12 items. Order from your jobber or direct.
RAINBO ACCESSORIES COMPANY
1420 S. Michigan Ave., Chicago, Ill.



SPEE-DEE CLEANS UP for Dealers
Results in quick stock turn-over, with small investment and liberal profits. Without water it removes grease, stains, etc., from hands, clothes, unholstery, paint or enamel. Indispensable in shops, service stations and car kits. List 35c.
Write for discount details.
States Chemical Company
703 W. Fulton St. Chicago, Ill.

LIKUM Alarm Ignition LOCK
TYPE A $5.00 Locks ignition and sounds horn if tampered with TYPE B $7.00
LOOMIS ~ KNIGHT ~ MILLER, Inc.
SPRINGFIELD ~ MASSACHUSETTS

HALL HONE $35. at your Jobber's
Spring and Solid Pressure in one Hone

CLASSIFIED ADVERTISING

PARTS

AUTO PARTS
SAVES 50% TO 75% ON ALL CARS
New and Used Gears—Springs and Axles—Cylinders—Motors—Rear Systems, etc. Wire or Write
INDIANA AUTO PARTS CO.
608-10 N. CAPITOL AVE., INDIANAPOLIS, IND.
LARGEST CAR WRECKERS IN INDIANA

HOUSE OF A MILLION AUTO PARTS
The largest stock of new and used car and truck parts in the world. We have everything. Always mention model and serial number in order. Write us. All inquiries answered promptly.
DOUGLAS AUTO PARTS CO., INC.
2003-5-7-9 South State St., Chicago, Ill.

PATENTS & PATENT ATTORNEYS

C. L. PARKER
Ex-Examiner U. S. Patent Office
Attorney-at-Law and Solicitor of Patents
McGill Building, Washington, D. C.
Patent, Trade Mark and Copyright Law

BUSINESS OPPORTUNITIES

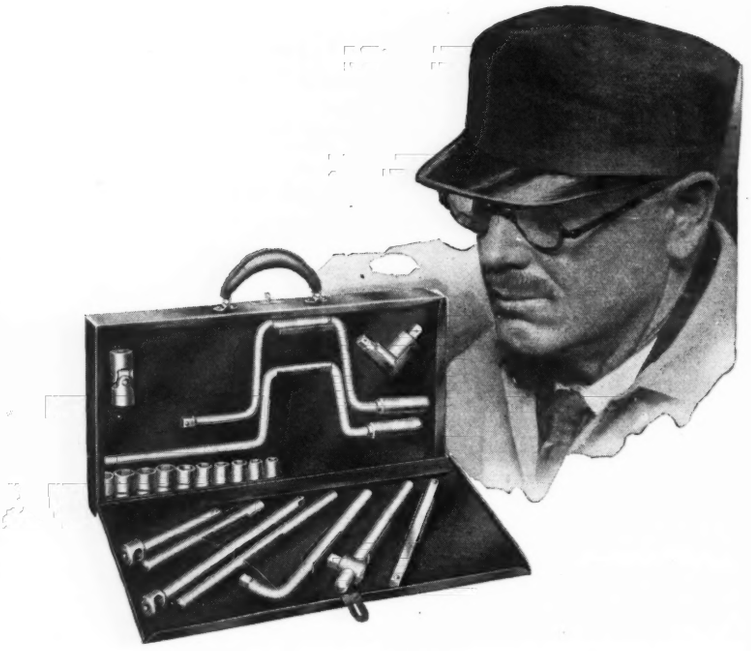
"Clearing $400 month with my Haywood Vulcanizer. Some return on a $350 investment." Tire repairs paying big. We furnish everything. Train you free. Easy terms. Haywood Tire Equipment Company, 1318 South Oakley Avenue, Chicago.

RACING EQUIPMENT

For Sale—Jimmy Murphy's 183-cubic inch Duesenberg Straight Eight with all extra parts, in which he won the French Grand Prix. A. R. Bartold, 150 Westcott St., Rochester, N. Y.

Racing Car Wanted—Fronty or any other make. Must be in good condition. Give all specifications and price. Joe Povich Garage, Zeigler, Ill.

To locate business opportunities
To sell, rent, exchange or buy
To find men or employment
The Classified Department will help you



Walden-Worcester

Quality

in Interchangeable Socket Wrenches

—For those who prefer this type

SET NO. 28 is a fine example of a REAL set of socket wrenches for REAL work by mechanics. So complete in its sockets, handles, swivels, etc., that it can service ALL cars. Ideal for the independent garage. Contains

Long Shank Speed Wrench, 20" over all, 9¾" shank with solid steel grips.
Short Shank Speed Wrench, 14¾" over all, 4¾" shank with two solid steel grips.
Long Shank Tee Handle, 12" shank, with 12" sliding cross bar.
Short Shank Tee Handle, 6" shank, with 8" sliding cross bar.
Back Spin Reversible Ratchet, 2¾" long, 1" diameter.
10" Combination Tee and Offset.
Plug Connector, 9" Extension Bar, Socket Connector, Offset Handle, Universal Joint.
10 CHROME NICKEL Sockets (Hexagonal)—7/16, ½, 9/16, 19/32, ⅝, 11/16, ¾, 25/32, 13/16, ⅞.
Steel Box, size 14¼"x6¾"x2¾".
Weight, 20 lbs. 8 ozs.

Same quality as used for assembly in 90% of the car factories. As all parts are interchangeable, you can add to or replace any part at any time.

Order through any of our Jobbers. Catalog direct from us. Walden-Worcester, Inc., Worcester, Mass.

WALDEN-WORCESTER
The original and largest exclusive manufacturers of All Steel, Socket Wrenches,—in the World
473 SHREWSBURY ST., WORCESTER, MASS., U. S. A.

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You'll Make Big Profits Selling the ONLY Springs for **Ford Cars** and **Trucks**

That Will Never Break



Every Ford Owner Wants The Hayes Unbreakable

NO-LEAF

Springs

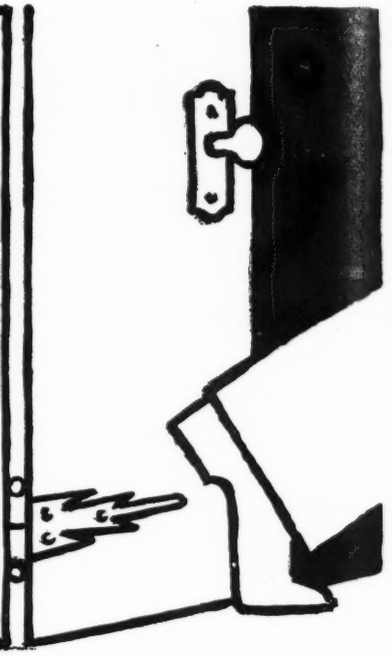
Our distributors are ordering these springs by the thousand. Distributors, Dealers and Garagemen are making good profit on every sale. The "NO-LEAF" Springs are in DEMAND because they keep every FORD in service. They combine all the advantages of shock Absorbers and snubbers. They deliver perfect spring action WITHOUT FRICTION. They make a Ford ride like a heavy expensive car. They will OUTLAST ANY FORD.

Retail at $10 on a money-back basis.

WE WANT DISTRIBUTORS AND DEALERS
Write for Open Territory NOW

HAYES EQUIPMENT CO.
547 N. Michigan Blvd. Chicago, Ill.

Competition goes OUT when the MURRAY FRANCHISE comes IN!





Because:

A Murray Franchise gives you the exclusive agency in your territory to build a business that's all *YOURS*. It gives you the advantage of a single line of tires, proof against price-cutting by your competitors.

The Murray line gives you a complete stock of sizes for every tire need. Every tire is a quality tire—top grade. No Murray "seconds" have ever been put on the market.

You get your discount when you buy your stock—not at the end of a year. You can figure what your tires cost you and you can figure your profit at the same time and count on it. No guesswork or gambling.

Because:

Our policy of factory-direct-to-distributor merchandising makes low prices to you possible. Prices are based on manufacturing cost plus a very limited profit to us.

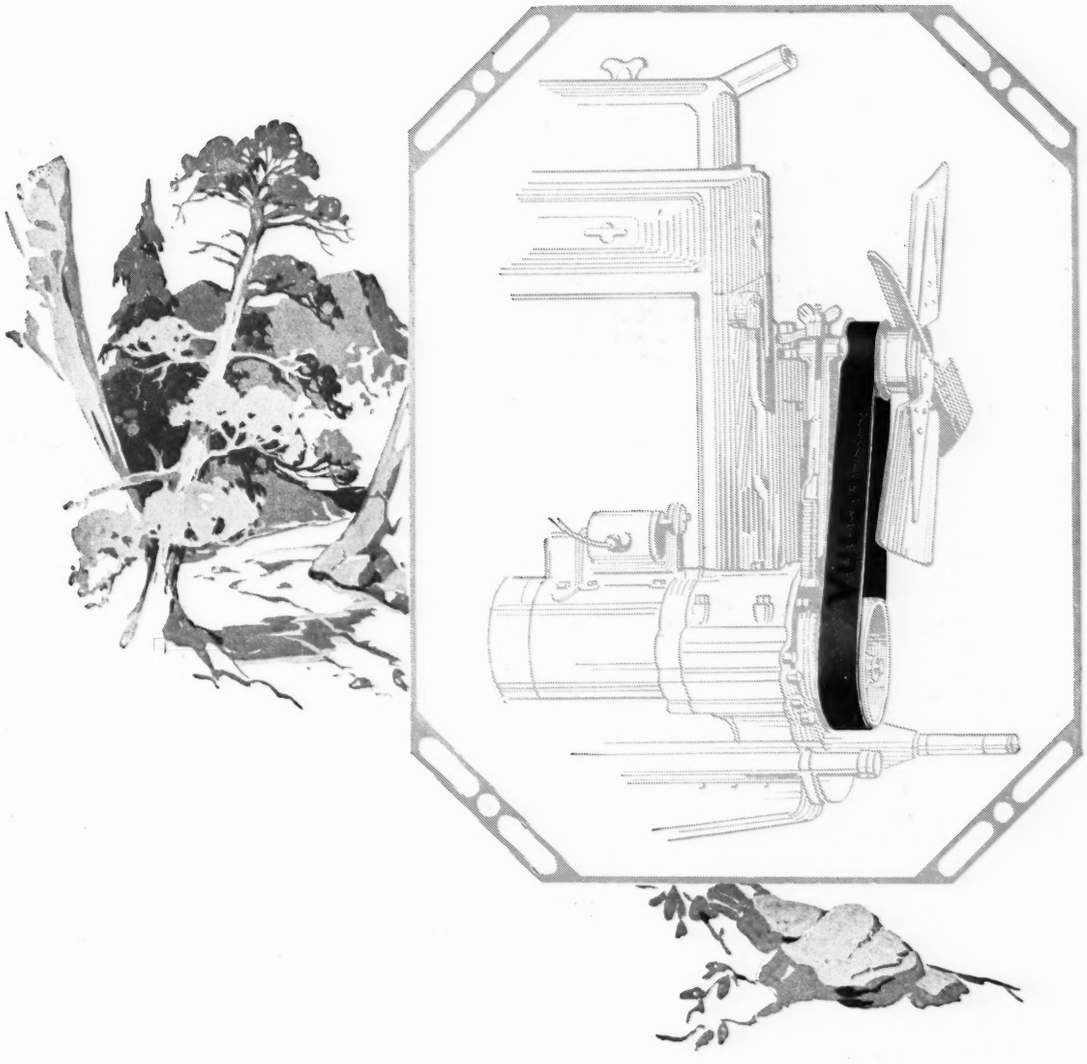
Every holder of a Murray Franchise enjoys uniform prices and the same opportunity for profit.

Murray Franchise holders are backed by the wholehearted cooperation of our Sales Promotion Department. Liberal dealer helps for indoor and outdoor display, abundant good advertising material for newspapers and circularizing and sharing the cost of your local advertising are all available to help your stock turn over quickly and profitably.



Hundreds of letters in our files show that Murray Franchise Dealers are enthusiastic about the Murray Plan, Murray Goods and Murray Service. We give the best we have from the moment they become Murray Dealers. Write us today for the whole story before your competitor beats you to it.

MURRAY RUBBER COMPANY, Trenton, N. J.



GATES VULCO BELTS

"The Standardized Fan Belt"

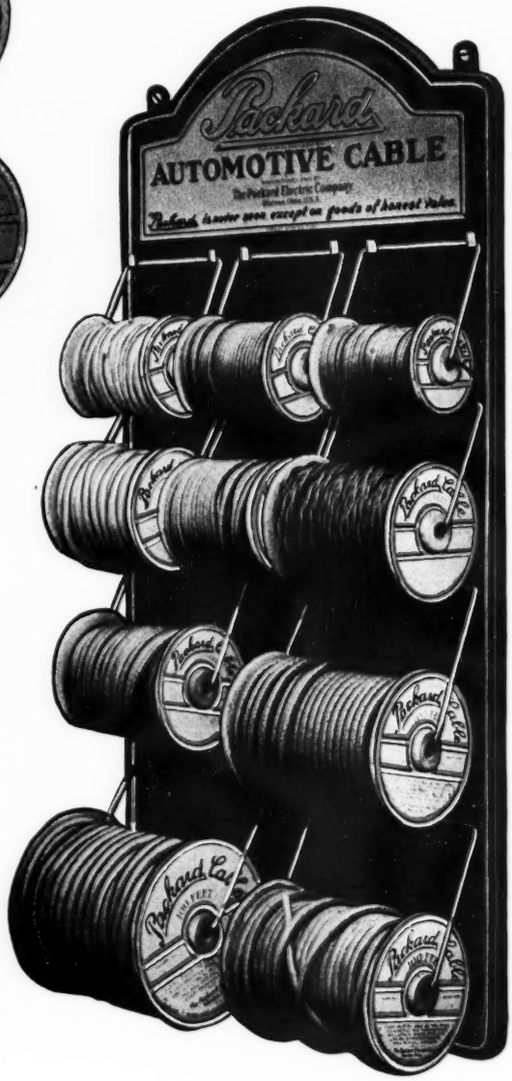
The customer who drives up with a hot engine naturally appreciates the service you render him by replacing his outworn, *slipping* fan belt with the belt that really *grips* the pulley—the Gates Vulco.

Made by the World's Largest Manufacturers of Fan Belts.



PACKARD STANDARD MERCHANDISER

Many automotive dealers will be interested to learn that there is a complete line of Packard Radio Cable which is a worthy companion, in every respect, to Packard Automotive Cable. Packard Radio Cable is also sold in assortments which are made up with both the Standard and DeLuxe merchandiser.



PACKARD DE LUXE MERCHANDISER

WHETHER five spools of cable will constitute an ample stock or whether you will require ten spools and more, there is a Packard Merchandiser which is especially designed to facilitate the handling of cable in your place of business.

Ask your Jobber Salesman for specific information as to which trade numbers make up the different assortments. If your favorite jobber cannot give you complete information, you are invited to communicate with us direct.

Packard Cable is a profitable line.

THE PACKARD ELECTRIC COMPANY, Warren, Ohio

Packard is never seen, except on goods of honest value